NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

September 30, 2009

VIA ELECTRONIC FILING

Ms. Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Re: *North American Electric Reliability Corporation*
Docket Nos. RM09-___-000

Dear Ms. Bose:

The North American Electric Reliability Corporation ("NERC") hereby submits this filing in accordance with Section 215(d)(1) of the Federal Power Act ("FPA") and Part 39.5 of the Federal Energy Regulatory Commission's ("FERC") regulations, seeking approval of two proposed Reliability Standards:

- PER-005-1 — System Personnel Training
- PER-004-2 — Reliability Coordination – Staffing

The full text of these proposed standards is contained in **Exhibit A** to this petition. NERC requests an effective date for these standards to be established in accordance with the implementation plan set forth in the respective standards. NERC requests that FERC retire existing Reliability Standards PER-002-0 — Operating Personnel Training and PER-004-1 — Reliability Coordination – Staffing as of the effective date of the proposed standards herein.

Proposed Violation Risk Factors ("VRFs") or Violation Severity Levels ("VSLs") are provided for each main requirement in PER-005-1. Because the changes to PER-004-1 removed existing requirements in total without alteration to requirements that remain in PER-004-2, VRFs and VSLs approved for PER-004-1 are brought forward intact and NERC requests that they be approved for the requirements that remain in PER-004-2. The VSLs applicable to PER-005-1 and PER-004-2 are being reviewed pursuant to the four FERC Guidelines detailed in FERC's June 19, 2008 Order[1] and November 20, 2008 Order,[2] and the review of those assignments will be filed upon approval by the NERC Board of Trustees. Accordingly, pending FERC review and approval of that filing, NERC requests these proposed standards be made effective under FERC's procedures in accordance with the implementation plan set forth in the proposed Reliability Standards.

These proposed Reliability Standards were adopted by the NERC Board of Trustees on February 10, 2009.

NERC's petition consists of the following:

- This transmittal letter;
- A table of contents for the entire petition;
- A description explaining how the proposed Reliability Standards meet FERC's requirements;
- Reliability Standards PER-004-2 and PER-005-1 submitted for approval (**Exhibit A**);
- The complete development record of the proposed Reliability Standards (**Exhibit B**); and
- Standard Drafting Team Roster (**Exhibit C**).

[1] *North American Electric Reliability Corp.*, 123 FERC ¶ 61,284 (2008) ("June VSL Order").
[2] *North American Electric Reliability Corp.*, 125 FERC ¶ 61,212 (2008) ("November VSL Order").

Please contact the undersigned if you have any questions.

Respectfully submitted,

/s/ Holly A. Hawkins
Holly A. Hawkins

Attorney for North American Electric Reliability Corporation

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION	**) Docket Nos. RM09-__-000)**

PETITION OF THE NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION FOR APPROVAL OF PROPOSED RELIABILITY STANDARDS REGARDING SYSTEM PERSONNEL TRAINING

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TABLE OF CONTENTS

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PETITION OF THE NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION FOR APPROVAL OF PROPOSED RELIABILITY STANDARDS REGARDING SYSTEM PERSONNEL TRAINING

I. INTRODUCTION

The North American Electric Reliability Corporation ("NERC")[3] hereby requests the Federal Energy Regulatory Commission ("FERC") to approve, in accordance with Section 215(d)(1) of the Federal Power Act ("FPA")[4] and Section 39.5 of FERC's regulations, 18 C.F.R. § 39.5, two Reliability Standards, PER-004-2 — Reliability Coordination – Staffing and PER-005-1 — System Personnel Training. On February 10, 2009, the NERC Board of Trustees approved the PER-004-2 and PER-005-1 Reliability Standards that are proposed in this filing. NERC requests that FERC approve the proposed Reliability Standards and make them effective in accordance with the implementation plan set forth in the Reliability Standards. NERC requests that FERC retire existing approved Reliability Standards PER-002-0 — Operating Personnel Training and PER-004-1 — Reliability Coordination – Staffing upon the effective date of PER-004-2 and PER-005-1 proposed herein. **Exhibit A** to this filing sets forth the

[3] NERC has been certified by FERC as the electric reliability organization ("ERO") authorized by Section 215 of the Federal Power Act. FERC certified NERC as the ERO in its order issued July 20, 2006 in Docket No. RR06-1-000. *North American Electric Reliability Corporation*, 116 FERC ¶ 61,062 (2006) ("ERO Certification Order).
[4] 16 U.S.C. 824o (2000).

proposed Reliability Standards. **Exhibit B** contains the complete development record of the Reliability Standards. **Exhibit C** contains the Standard Drafting Team roster.

NERC also is filing these Reliability Standards with applicable governmental authorities in Canada.

II. NOTICES AND COMMUNICATIONS

Notices and communications with respect to this filing may be addressed to the following:

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III. BACKGROUND

a. Regulatory Framework

By enacting the Energy Policy Act of 2005,[5] Congress entrusted FERC with the duties of approving and enforcing rules to ensure the reliability of the Nation's bulk power system, and with the duties of certifying an electric reliability organization ("ERO") that would be charged with developing and enforcing mandatory Reliability Standards, subject to FERC approval. Section 215 states that all users, owners and

[5] 16 U.S.C. § 824o (2000).

operators of the bulk power system in the United States will be subject to FERC-approved Reliability Standards.

b. Basis for Approval of Proposed Reliability Standards

Section 39.5(a) of FERC's regulations requires the ERO to file with FERC for its approval each Reliability Standard that the ERO proposes to become mandatory and enforceable in the United States, and each modification to a Reliability Standard that the ERO proposes to be made effective. FERC has the regulatory responsibility to approve standards that protect the reliability of the bulk power system. In discharging its responsibility to review, approve, and enforce mandatory Reliability Standards, FERC is authorized to approve those proposed Reliability Standards that meet the criteria detailed by Congress:

> [FERC] may approve, by rule or order, a proposed reliability standard or modification to a reliability standard if it determines that the standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest.[6]

When evaluating proposed Reliability Standards, FERC is expected to give "due weight" to the technical expertise of the ERO. Order No. 672 provides guidance on the factors FERC will consider when determining whether proposed Reliability Standards meet the statutory criteria.[7]

c. Reliability Standards Development Procedure

NERC develops Reliability Standards in accordance with Section 300 (Reliability Standards Development) of its Rules of Procedure and the NERC *Reliability Standards*

[6] 16 U.S.C. § 824o (d)(2) (2000).
[7] *See Rules Concerning Certification of the Electric Reliability Organization; Procedures for the Establishment, Approval and Enforcement of Electric Reliability Standards, FERC Stats. & Regs.*, ¶ 31,204 at PP 320-338 ("Order No. 672"), *order on reh'g*, FERC Stats. & Regs. ¶ 31,212 (2006) ("Order No. 672-A").

Development Procedure, which is incorporated into the Rules of Procedure as Appendix 3A. In its ERO Certification Order, FERC found that NERC's proposed rules provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing Reliability Standards and thus satisfies certain of the criteria for approving Reliability Standards.[8]

The development process is open to any person or entity with a legitimate interest in the reliability of the bulk power system. NERC considers the comments of all stakeholders, and a vote of stakeholders and the NERC Board of Trustees is required to approve a Reliability Standard for submission to FERC.

The proposed Reliability Standards set out in **Exhibit A** have been developed and approved by industry stakeholders using NERC's *Reliability Standards Development Procedure*, and were approved by the NERC Board of Trustees on February 10, 2009.

The Reliability Standards proposed for approval serve a key reliability goal identified during the 2003 blackout to strengthen the quality of operator training programs.[9] Reliability standard PER-005-1 — System Personnel Training is a new standard that wholly supersedes approved Reliability Standard PER-002-0 and certain requirements in PER-004-1, resulting in a revised PER-004-2 standard that is also proposed for approval. NERC requests that upon the effective date of the proposed

[8] Order No. 672 at PP 268, 270.

[9] *August 14, 2003 Blackout: NERC Actions to Prevent and Mitigate the Impacts of Future Cascading Blackouts February 10, 2004,* Recommendation 6. Improve Operator and Reliability Coordinator Training, p. 11:

> NERC found during its investigation that some reliability coordinators and control area operators had not received adequate training in recognizing and responding to system emergencies. Most notable was the lack of realistic simulations and drills for training and verifying the capabilities of operating personnel. This training deficiency contributed to the lack of situational awareness and failure to declare an emergency when operator intervention was still possible prior to the high speed portion of the sequence of events.

standards, FERC concurrently retire existing Reliability Standards PER-002-0 and PER-004-1.

These proposed standards are a significant improvement from the currently existing Reliability Standards. For that reason, NERC recommends that FERC approve the standards proposed in this filing as a significant step in strengthening the quality of operator training programs as necessary for the reliability of the bulk power system.

IV. JUSTIFICATION FOR APPROVAL OF PROPOSED RELIABILITY STANDARDS

This section summarizes the development of the proposed Reliability Standards and provides evidence that the proposed Reliability Standards meet the criteria for approval set by FERC – that is, the proposed Reliability Standards are just, reasonable, not unduly discriminatory or preferential and in the public interest. This section also describes the reliability objectives to be achieved by approving the Reliability Standards, explains how the Reliability Standards meet the criteria FERC has established, and states how the Reliability Standards address key FERC directives from Order No. 693. The final discussion in this section provides the stakeholder ballot results and explains how other key issues were considered and addressed by the Standard Drafting Team.

The complete development record for these proposed Reliability Standards is available in **Exhibit B**. This record includes the successive drafts of the Reliability Standards, the implementation plan, the ballot pool and the final ballot results by registered ballot body members, stakeholder comments received during the development of the Reliability Standards, and how those comments were considered in developing the Reliability Standards. The Standard Drafting Team roster is provided in **Exhibit C**.

a. Basis and Purpose of PER-005-1 — System Personnel Training

Proposed Reliability Standard PER-005-1 requires the use of a systematic approach to training in developing System Operator training programs, requires verification that System Operators can perform their assigned tasks, and requires responsible entities to provide at least 32 hours of emergency operations training to each of their System Operators every 12 months. For Reliability Coordinators, Balancing Authorities, and Transmission Operators that have operational authority or control over facilities with established Interconnection Reliability Operating Limits ("IROLs") or that have established operating guides or protection systems to mitigate IROL violations, Requirement 3.1 of PER-005-1 requires that simulation technology, such as simulator, virtual technology, or other technology that replicates the operational behavior of the bulk electric system[10] be used during normal and emergency conditions as a part of their emergency operations training requirements. The proposed Reliability Standards serve to implement a key recommendation from the 2003 Northeast blackout by addressing an identified gap where operations personnel were not adequately trained to maintain

[10] Section 215 of the FPA and Section 39.1 of FERC's regulations codified the term "bulk power system" to refer to those facilities and control systems necessary for operating an interconnected electric energy transmission network and electric energy from generating facilities needed to maintain transmission system reliability. Prior to enactment of Section 215 of the FPA, NERC used the term "bulk electric system" to refer to the facilities subject to its planning and operating rules. In Order No. 693, FERC provided for an initial period in which FERC will rely on the NERC definition of bulk electric system and NERC's registration process to provide as much certainty as possible regarding the applicability to and the responsibility of specific entities to comply with the Reliability Standards in the start-up phase of a mandatory Reliability Standard regime. *See* Mandatory Reliability Standards for the Bulk-Power System, FERC Stats. & Regs. ¶ 31,242 (2007) (Order No. 693) at P 75, *reh'g denied*, 120 FERC ¶ 61,053 (2007) (Order No. 693-A). Because the drafting team for the Reliability Standards proposed in this filing began work on the development of these standards before the term "bulk power system" was codified, the proposed Reliability Standard continues to use the NERC-defined term "bulk electric system." In this filing, NERC uses the term "bulk power system" unless citing directly to the proposed Reliability Standard, in which case the term "bulk electric system" is used.

reliable operation under emergency conditions.[11] Operators must be trained to recognize and take effective action in response to these emergencies. These concepts were further embodied in FERC's Order No. 693 where the expectation to incorporate a systematic approach to training was established, as well as the need to provide operator simulation as part of the emergency training requirement.

NERC's filing for approval of these Reliability Standards marks a significant milestone toward achieving FERC priorities as articulated in Order No. 693. These

[11] *See* Blackout Report at pp. at 110, 194 and 202, respectively. The US-Canada Blackout Report contained further detail on the deficiencies regarding operator training that contributed to the event:

"Operating procedures were necessary but not sufficient to deal with severe power system disturbances in several of the events. Enhanced procedures and training for operating personnel were recommended. Dispatcher training facility scenarios with disturbance simulation were suggested as well. Operators tended to reduce schedules for transactions but were reluctant to call for increased generation—or especially to shed load—in the face of a disturbance that threatened to bring the whole system down. Previous recommendations concerning training include:

- Thorough programs and schedules for operator training and retraining should be vigorously administered.
- A full-scale simulator should be made available to provide operating personnel with "hands-on" experience in dealing with possible emergency or other system conditions.
- Procedures and training programs for System Operators should include anticipation, recognition, and definition of emergency situations.
- Written procedures and training materials should include criteria that System Operators can use to recognize signs of system stress and mitigating measures to be taken before conditions degrade into emergencies.
- Line loading relief procedures should not be relied upon when the system is in an insecure state, as these procedures cannot be implemented effectively within the required time frames in many cases. Other readjustments must be used, and the System Operator must take responsibility to restore the system immediately.
- Operators' authority and responsibility to take immediate action if they sense the system is starting to degrade should be emphasized and protected.
- The current processes for assessing the potential for voltage instability and the need to enhance the existing operator training programs, operational tools, and annual technical assessments should be reviewed to improve the ability to predict future voltage stability problems prior to their occurrence, and to mitigate the potential for adverse effects on a regional scale."

"Problems identified in studies of prior large-scale blackouts were repeated, including deficiencies in vegetation management, operator training, and tools to help operators better visualize system conditions."

"NERC found during its investigation that some reliability coordinators and control area operators had not received adequate training in recognizing and responding to system emergencies. Most notable was the lack of realistic simulations and drills for training and verifying the capabilities of operating personnel. This training deficiency contributed to the lack of situational awareness and failure to declare an emergency when operator intervention was still possible prior to the high speed portion of the sequence of events."

proposed standards result from a collaborative effort by the NERC Standard Drafting Team and the electric industry over several years to address these challenging training issues. The resulting standards proposed in this filing add a significant amount of structure to the training programs for the principal operators of the bulk power system, namely Reliability Coordinators, Balancing Authorities and Transmission Operators. NERC recognizes that additional training obligations remain to be established for generator operators and various operations support personnel in response to Order No. 693; these will be addressed in a subsequent development effort as described in the *Reliability Standards Development Plan: 2009-2011*.

The proposed Reliability Standard requires training for the purpose of ensuring that System Operators performing real-time, reliability-related tasks on the North American bulk power system are competent to perform those reliability-related tasks. The proposed standard PER-005-1 addresses the functional entities required to complete the training, the design of training programs, and the implementation of those training programs. PER-005-1[12] represents the first NERC Reliability Standard that expressly addresses the design of System Operator training programs. The implementation of this Reliability Standard will ensure that the expectations for operating the bulk power system are understood through the training contemplated by the standard, are formally documented, and are adhered to in practice.

PER-005-1 contains three requirements summarized as follows:

- Requirement R1 mandates the use of a systematic approach to training for both new and existing training programs. The requirement further requires applicable entities to create a company-specific, reliability-related task list

[12] The basic elements of three requirements (R2- 4) of FERC approved PER-004-1 were incorporated into proposed PER-005-1. The remaining requirements (R1 and R5) from PER-004-1 were not modified and are carried forward intact in PER-004-2.

relevant to bulk power system operation and to design and develop learning objectives and training materials based on the task list performed by its System Operators each calendar year. Finally, the requirement mandates the training be delivered and the training program be evaluated on at least an annual basis to assess its effectiveness.

- Requirement R2 requires the verification of a System Operator's ability to perform the tasks identified in Requirement R1. The requirement also mandates re-verification of a System Operator's ability to perform the tasks within a specified time period when program content is modified.
- Requirement R3 identifies the number of hours of emergency operations training (at least 32 hours) that a System Operator is required to obtain every twelve months. The requirement further identifies those entities required to use simulation technology such as a simulator, virtual technology, or other technology in their emergency operations training programs.

Demonstration that the proposed Reliability Standard is just, reasonable, not unduly discriminatory or preferential and in the public interest

In Order No. 672, FERC identified a number of criteria it will use to analyze Reliability Standards proposed for approval to ensure they are just, reasonable, not unduly discriminatory or preferential, and in the public interest.[13] The discussion below identifies these factors and explains how the proposed Reliability Standards have met or exceeded the criteria:

1. **Proposed Reliability Standards must be designed to achieve a specified reliability goal**

   Order No. 672 at P 321. The proposed Reliability Standard must address a reliability concern that falls within the requirements of section 215 of the FPA. That is, it must provide for the reliable operation of Bulk-Power System facilities. It may not extend beyond reliable operation of such facilities or apply to other facilities. Such facilities include all those necessary for operating an interconnected electric energy transmission network, or any portion of that network, including control systems. The proposed Reliability Standard may apply to any design of planned additions or modifications of such facilities that is necessary to provide for reliable operation. It may also apply to Cybersecurity protection.

[13] *See* Order No. 672 at PP 262, 321-37. *See also* Order No. 693 at P 5.

Proposed Reliability Standard PER-005-1 — System Personnel Training is designed to ensure that System Operators performing real-time reliability-related tasks on the bulk power system are competent to perform those reliability-related tasks.

2. Proposed Reliability Standards must contain a technically sound method to achieve the goal

> Order No. 672 at P 324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal. Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons.

The proposed Reliability Standards contain a technically sound method that strengthens the quality of operator training programs that are necessary for the reliability of the bulk power system. For example, proposed PER-005-1 utilizes a systematic approach to training, a training structure used to ensure that operators receive the training necessary to perform their assigned tasks. Responsible entities identify the tasks necessary for competent job performance through a systematic analysis of job requirements. A comprehensive training program is then developed based on the results of that analysis.

A systematic approach to training provides: focus on what the trainee needs to know and will be able to do after training is conducted; program development that is experience-based and is a process that is "reusable" as new tasks are identified; and a methodology used in every systematic approach to training that carefully links each component of a training program. A systematic approach to training also provides reasonable assurance that the program effectively addresses the required tasks through

application of analysis, design, development, implementation, and evaluation. Finally, the systematic approach to training requires a systematic evaluation of training effectiveness and its relation to on-the-job performance to ensure that the training program conveys all required skills and knowledge. On this basis, the systematic approach to training provides a technically sound foundation for development of operator training programs.

Additionally, the proposed Reliability Standard PER-005-1 requires that System Operators be trained with simulators/simulation technology, which facilitates training on how to respond to events that occur infrequently. This type of training is widely accepted in many industries as an effective and efficient tool for providing training and practice. Simulators/simulation technology has been used by personnel in industries where the consequences of an error can have extensive ramifications for safety. These industries include airline pilots, shipping pilots and operators of control systems in the chemical, oil and gas industries. Therefore, requiring the use of simulators/simulation technology in training programs is a key component to achieving the objective of the Reliability Standard.

In its development of the proposed Reliability Standard, the team identified Reliability Coordinators, Transmission Operators and Balancing Authorities that have operational authority or control over facilities with established Interconnection Reliability Operating Limits ("IROLs") or that have established operating guides or protection systems to mitigate IROL violations as having operational control over a significant portion of load and generation. The Standard Drafting Team based this decision on the fact that IROLs, if exceeded, could expose a widespread area of the bulk power system to

instability, uncontrolled separation(s) or cascading outages. On this basis, the Standard Drafting Team concluded it is technically sound to use IROLs as a delineating factor to determine which entities need to employ simulator/simulation technology in their training programs.

3. Proposed Reliability Standards must be applicable to users, owners and operators of the bulk power system, and not others

> Order No. 672 at P 322. The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on others.

This standard is applicable only to Reliability Coordinators, Balancing Authorities and Transmission Operators. These entities are users, owners and operators of the bulk power system.

4. Proposed Reliability Standards must be clear and unambiguous as to what is required and who is required to comply

> Order No. 672 at P 325. The proposed Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability.

The proposed Reliability Standard applies to specific functional entities: Reliability Coordinators, Balancing Authorities and Transmission Operators. NERC uses its Section 500 compliance registry process to identify the specific entities that are required to comply with the proposed standards. The proposed Reliability Standards are specific with regard to what is required to comply with the requirements. PER-005-1 Requirement R1 requires subject entities to use a systematic approach to establish a training program for the bulk power system company-specific, reliability-related tasks performed by its System Operators. Requirement R1 further details four components to: (1) create a list of bulk power system company-specific reliability-related tasks; (2) design and develop learning objectives and training materials based on the task list; (3)

deliver the training; and (4) conduct an annual evaluation of the training program to identify and implement any needed changes.

Requirement R2 requires each subject entity to verify each of its System Operator's capabilities to perform each assigned identified task at least one time. Requirement R3 requires each subject entity to provide at least thirty-two hours of applicable emergency operations training to its System Operators within each twelve-month period. The proposed standard also includes measures that are used to determine an entity's compliance with the requirements, and a compliance process to verify conformance with the standard.

5. Proposed Reliability Standards must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation

Order No. 672 at P 326. The possible consequences, including range of possible penalties, for violating a proposed Reliability Standard should be clear and understandable by those who must comply.

The proposed PER-005-1 Reliability Standard includes a VRF for each main requirement in the Reliability Standard. In addition, the Reliability Standard contains a table containing VSLs ranging from Moderate to Severe that support the Reliability Standard's requirements.

Reliability Standard PER-005-1, Requirement R1 has a Medium VRF. This requirement is primarily administrative in nature because it prescribes a certain process to be used when developing a training program. It is unlikely that, under emergency, abnormal or restoration conditions, a violation of this requirement would lead to bulk power system instability, separation or cascading failures or hinder restoration to a normal condition.

An entity that fails to provide evidence that it updated its company-specific reliability-related task list to identify new or modified tasks each calendar year, or the entity that fails to provide evidence of having evaluated its training program to identify needed changes to its training programs, has failed to comply with Requirement R1 at a Moderate Level VSL. An entity that fails to design and develop learning objectives and training materials based on the bulk power system company-specific reliability-related tasks has failed to comply with Requirement R1 at a High Level VSL. An entity that fails to prepare a company-specific reliability-related task list or to deliver training based on the bulk power system company-specific reliability-related tasks has failed to comply with Requirement R1 at a Severe Level VSL.

Reliability Standard PER-005-1, Requirement R2 has a High VRF. This requirement provides for verification of an operator's ability to perform tasks associated with certain functions. If this requirement were violated, it could either directly cause or contribute to bulk power system instability, separation or a cascading sequence of failures, or it could place the bulk power system at an unacceptable risk of instability, separation or cascading failures.

An entity that verifies at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of bulk power system company-specific reliability-related tasks has failed to comply with Requirement R2 at a Moderate Level VSL. An entity that verifies at least 70% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of bulk power system company-specific reliability-related tasks or that fails to verify its System Operators' capabilities to perform each new or modified task within six months of making a

modification to its bulk power system company-specific reliability-related task list has failed to comply with Requirement R2 at a High Level VSL. An entity that verifies less than 70% of its System Operators' capabilities to perform each assigned task from its list of bulk power system company-specific reliability-related tasks has failed to comply with Requirement R2 at a Severe Level VSL.

Reliability Standard PER-005-1, Requirement R3 has a Medium VRF. Although this requirement provides for certain types of training to be performed at least every 12 months, it is unlikely that under emergency, abnormal or restoration conditions, a failure to complete this training would lead to bulk power system instability, separation or cascading failures or hinder restoration to a normal condition.

An entity that provides at least 32 hours of emergency operations training to at least 90% but less than 100% of their System Operators has failed to comply with Requirement R3 at a Moderate Level VSL. An entity that provides at least 32 hours of emergency operations training to at least 70% but less than 90% of its System Operators has failed to comply with Requirement 3 at a High Level VSL. An entity that provides 32 hours of emergency operations training to less than 70% of its System Operators or did not include simulation technology replicating the operational behavior of the bulk power system in its emergency operations training has failed to comply with Requirement R3 at a Severe Level VSL.

Once the standard is approved by FERC, the ranges of penalties for violations will be based on the applicable VRFs and VSLs and will be administered based on the sanctions table and supporting penalty determination process described in FERC-

approved NERC Sanction Guidelines, included in Appendix 4B to the NERC's Rules of Procedure.

6. Proposed Reliability Standards must identify clear and objective criterion or measures for compliance, so that it can be enforced in a consistent and non-preferential manner

> Order No. 672 at P 327. There should be a clear criterion or measure of whether an entity is in compliance with a proposed Reliability Standard. It should contain or be accompanied by an objective measure of compliance so that it can be enforced and so that enforcement can be applied in a consistent and non-preferential manner.

Each requirement in the proposed Reliability Standard is supported by a measure that clearly identifies what is required and how the requirement will be enforced. These measures, which include all sub-requirements, will ensure the requirements are clearly administered for enforcement in a consistent manner and without prejudice to any party. The measures are included in Section C of the proposed Reliability Standard. Furthermore, to aid in the compliance monitoring processes, NERC will develop a Reliability Standard audit worksheet ("RSAW") for this proposed Reliability Standard, once approved, in the list of actively monitored Reliability Standards for a particular program year. These RSAWs are auditor guides that also assist the applicable entity in understanding what they are expected to provide in support of the particular measures to demonstrate compliance.

7. Proposed Reliability Standards should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect "best practices" without regard to implementation cost

> Order No. 672 at P 328. The proposed Reliability Standard does not necessarily have to reflect the optimal method, or "best practice," for achieving its reliability goal without regard to implementation cost or historical regional infrastructure design. It should however achieve its reliability goal effectively and efficiently.

The proposed Reliability Standard helps the industry achieve the stated reliability goal effectively and efficiently by requiring the implementation of a systematic approach to training for reliability related tasks performed by System Operators (Requirement R1). This includes the development of a list of company specific bulk power system reliability related tasks, learning objectives and training material based on the list and an annual review of the training program. (Requirements R1.1 – R1.4). The proposed standard requires that the operator's ability to perform each of the tasks on the task list to be verified (Requirement R2). The proposed standard also requires that a portion of the training be devoted to emergency operations and restoration topics that includes the expectation for certain entities to provide simulation (Requirement R3). NERC recognizes that the implementation cost of a full-fledged system-specific simulator can be significant. Therefore, the use of a simulator is only required for entities managing facilities having a significant impact on the bulk power system (Requirement R3.1), that is, those who are responsible for identifying, managing, or mitigating IROLs. Additionally, these entities have thirty-six (36) months to implement the simulator requirement (Applicability Section 5.3). This approach takes into consideration the implementation cost of simulators, as well as the time to integrate simulation technologies into the training program.

8. Proposed Reliability Standards cannot be "lowest common denominator," i.e., cannot reflect a compromise that does not adequately protect bulk power system reliability

> Order No. 672 at P 329. The proposed Reliability Standard must not simply reflect a compromise in the ERO's Reliability Standard development process based on the least effective North American practice — the so-called "lowest common denominator" — if such practice does not adequately protect Bulk-Power System reliability. Although [FERC] will give due weight to the technical expertise of the ERO, [FERC] will not hesitate to remand a proposed

> Reliability Standard if [FERC is] convinced it is not adequate to protect reliability.

The proposed Reliability Standards do not reflect a "lowest common denominator" approach because the proposed standards add significant structure and specificity beyond that required in the current operator training standards. The proposed standards are a significant improvement from the currently existing Reliability Standards. For that reason, NERC recommends that FERC approve the standards proposed in this filing as a significant step in strengthening the quality of operator training programs as necessary for the reliability of the bulk power system.

The proposed standards require users, owners or operators of the bulk power system to utilize a systematic approach to training in order to establish, coordinate and implement training programs which do not exist in the FERC-approved PER-002-0 or PER-004-1 Reliability Standards. Further, the expectation to include a minimum of thirty-two hours of emergency operations training for every twelve-month period exists in the current standards but the requirement to add simulation training for certain entities is new. Therefore, the proposed standards add greater expectations with respect to operator training than exists currently. As a result, these standards are not the lowest common denominator with regard to its development, and are a significant step in improving operating training standards for bulk power system reliability.

9. Proposed Reliability Standards may consider the costs to implement a proposed Reliability Standard on smaller entities but not at consequence of less than excellence in operating system reliability

> Order No. 672 at P 330. A proposed Reliability Standard may take into account the size of the entity that must comply with the Reliability Standard and the cost to those entities of implementing the proposed Reliability Standard. However, the ERO should not propose a "lowest common denominator" Reliability Standard that would achieve less than excellence in operating system reliability solely to protect against reasonable expenses for

> supporting this vital national infrastructure. For example, a small owner or operator of the Bulk-Power System must bear the cost of complying with each Reliability Standard that applies to it.

With the exception of the requirement for simulation training discussed previously, all entities, small and large, are expected to comply with the proposed standards in the same manner. The standards allow an entity to tailor a training program to its company-specific related tasks and thus recognizes that a training program is not a "one size fits all." Smaller entities may have a lesser number of reliability-related tasks than larger entities, thus the size of their training program will be smaller as a result.

The requirement in this standard for the use of simulation technology has been limited to only those entities with established IROLs or that have established operating guides or protection systems to mitigate IROL violations. In addition, simulation technology has been identified in the proposed PER-005-1, Requirement R3.1 standard as a "simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency operations." Therefore, the standard adequately takes into account the costs of achieving compliance with the requirements of the standard because several options for implementing simulation technology are available in order to achieve compliance. Because all of options presented in Requirement R3.1 of the proposed Reliability Standard will achieve the desired result for operating training, the proposed standard's purpose in ensuring bulk power system reliability is not compromised for the sake of achieving greater cost savings.

10. Proposed Reliability Standards must be designed to apply throughout North America to the maximum extent achievable with a single Reliability Standard while not favoring one area or approach

> Order No. 672 at P 331. A proposed Reliability Standard should be designed to apply throughout the interconnected North American Bulk-Power System, to the maximum extent this is achievable with a single Reliability Standard. The proposed Reliability Standard should not be based on a single geographic or regional model but should take into account geographic variations in grid characteristics, terrain, weather, and other such factors; it should also take into account regional variations in the organizational and corporate structures of transmission owners and operators, variations in generation fuel type and ownership patterns, and regional variations in market design if these affect the proposed Reliability Standard.

The proposed Reliability Standard is a single standard that will be universally applicable in the U.S. and in applicable governmental areas in Canada where NERC standards or their equivalents are made effective. This proposed Reliability Standard recognizes business and operational variations in the responsibilities of large and small entities. For example, only entities with established IROLs or that have protection schemes in place to mitigate an IROL are obligated to integrate simulation capability, respectful of the impact these entities have on the reliability of the bulk power system.

11. Proposed Reliability Standards should cause no undue negative effect on competition or restriction of the grid

> Order No. 672 at P 332. As directed by section 215 of the FPA, [FERC] itself will give special attention to the effect of a proposed Reliability Standard on competition. The ERO should attempt to develop a proposed Reliability Standard that has no undue negative effect on competition. Among other possible considerations, a proposed Reliability Standard should not unreasonably restrict available transmission capability on the Bulk-Power System beyond any restriction necessary for reliability and should not limit use of the Bulk-Power System in an unduly preferential manner. It should not create an undue advantage for one competitor over another.

The proposed training standard enhances the operation and reliability of the grid and does not constrain competition or restrict transmission capability. Because the proposed standard does not have a business practice impact, this factor is not applicable.

12. The implementation time for the proposed Reliability Standards must be reasonable.

> Order No. 672 at P 333. In considering whether a proposed Reliability Standard is just and reasonable, [FERC] will consider also the timetable for implementation of the new requirements, including how the proposal balances any urgency in the need to implement it against the reasonableness of the time allowed for those who must comply to develop the necessary procedures, software, facilities, staffing or other relevant capability.

Operator training is a high priority activity. Recommendation 6 of the 2003 Blackout report titled "Improve Operator and Reliability Coordinator Training" served notice to the industry that operator training needed improvement. FERC Order No. 693 also reinforced FERC's expectations regarding operator training. The priority for implementing this Reliability Standard was described in FERC's Notice of Proposed Rulemaking[14] (NOPR) preceding FERC Order No. 693. In the NOPR, FERC described the basis for identifying Operating Personnel Training as a "High Priority Standard."

Paragraph 774 of the NOPR stated:

> A review of operator demographics reveals that a large percentage of electrical operators will retire over the next five years. As these older and more experienced operators retire, the need for structured, comprehensive and effective training programs tailored to the needs of the functions and individuals become even more crucial, and will need to be developed and implemented for incoming operators who will not have benefited from years of on-the-job training, mentoring and knowledge transfer from experienced operators…

The implementation schedule for the proposed standards is reasonable and recognizes that training is not a "one-size-fits-all" program. The 24-month implementation timeframe for Requirement R1 and R2 allows flexibility in creating and implementing the training programs that use a systematic approach to training, and is structured and tailored to the functions that each entity performs in operating the bulk

[14] *Notice of Proposed Rulemaking*, 117 FERC 61,084 (October 20, 2006).

power system. Additionally, Requirement R3, which addresses emergency operations training, is presently in effect through PER-002-0 Requirement R4 and PER-004-1 Requirement R2. Therefore, immediate implementation of this Requirement will not impose any further burden on entities.

The proposed Requirement R3.1, which requires entities that have operational authority or control over Facilities with established IROLs or that have established operating guides or protection systems to mitigate IROL violations to use simulation technology within the emergency operations training construct, allows for a 36-month implementation period. Many of the entities already provide for the use of simulation technology within their training programs to some extent. However, the proposed standard will require these entities to ensure that simulation technology is integrated as a core component of those programs going forward. For entities currently without such capabilities, the implementation timeframe allows the needed flexibility to secure and integrate simulation technology into one compliance program. Finally, the proposed Reliability Standard generally exempts smaller entities that do not have a significant effect on the bulk power system from this requirement, except for those with IROL responsibility. Accordingly, NERC believes this proposed implementation plan presents a reasonable time frame to comply with the proposed Reliability Standard.

13. The Reliability Standard development process must be open and fair

> Order No. 672 at P 334. Further, in considering whether a proposed Reliability Standard meets the legal standard of review, we will entertain comments about whether the ERO implemented its [FERC]-approved Reliability Standard development process for the development of the particular proposed Reliability Standard in a proper manner, especially whether the process was open and fair. However, we caution that we will not be sympathetic to arguments by interested parties that choose, for whatever reason, not to participate in the ERO's Reliability Standard development

process if it is conducted in good faith in accordance with the procedures approved by [FERC].

NERC develops Reliability Standards in accordance with Section 300 (Reliability Standards Development Process) of its Rules of Procedure and the NERC *Reliability Standards Development Procedure*, which is incorporated into the Rules of Procedure as Appendix 3A. In its ERO Certification Order, FERC found that NERC's proposed rules provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing Reliability Standards.[15] The development process is open to any person or entity with a legitimate interest in the reliability of the bulk power system. The process considers the comments of all stakeholders, and a vote of both the stakeholders and the NERC Board of Trustees is required to approve a Reliability Standard for submission to FERC.

The proposed Reliability Standards set out in **Exhibit A** have been developed and approved by industry stakeholders using NERC's *Reliability Standards Development Procedure*, and were adopted by the NERC Board of Trustees on February 10, 2009 for filing with FERC. Therefore, NERC has utilized its standard development process in good faith and in a manner that is open and fair.

14. Proposed Reliability Standards must balance with other vital public interests

> Order No. 672 at P 335. Finally, we understand that at times development of a proposed Reliability Standard may require that a particular reliability goal must be balanced against other vital public interests, such as environmental, social and other goals. We expect the ERO to explain any such balancing in its application for approval of a proposed Reliability Standard.

The Reliability Standard PER-005-1, System Personnel Training, does not require balancing against any vital public interests nor does it do any harm to any vital public

[15] Order No. 672 at PP 268, 270.

interest. The System Personnel Training Standard supports vital public interests by ensuring that operating personnel of the bulk power system are adequately trained to operate the bulk power system at the highest levels of bulk power system reliability.

15. Proposed Reliability Standards must consider any other relevant factors

> Order No. 672 at P 323. In considering whether a proposed Reliability Standard is just and reasonable, we will consider the following general factors, as well as other factors that are appropriate for the particular Reliability Standard proposed.
>
> ***
>
> Order No. 672 at P 337. In applying the legal standard to review of a proposed Reliability Standard, [FERC] will consider the general factors above. The ERO should explain in its application for approval of a proposed Reliability Standard how well the proposal meets these factors and explain how the Reliability Standard balances conflicting factors, if any. [FERC] may consider any other factors it deems appropriate for determining if the proposed Reliability Standard is just and reasonable, not unduly discriminatory or preferential, and in the public interest. The ERO applicant may, if it chooses, propose other such general factors in its ERO application and may propose additional specific factors for consideration with a particular proposed Reliability Standard.

NERC does not propose any additional factors for consideration at this time.

b. Basis and Purpose of PER-004-2 Reliability Coordination – Staffing

Reliability Standard PER-004-1 — Reliability Coordination – Staffing addresses subject matter critical to bulk power system reliability, namely that Reliability Coordinators have sufficient competent staff to effectively perform the Reliability Coordinator functions. Proposed Reliability Standard PER-004-2 — Reliability Coordination – Staffing includes modifications to the PER-004-1 standard, that were made to avoid redundancy and potential conflict, and to conform to the requirements now associated with proposed new Reliability Standard PER-005-1.

More specifically, PER-004-2 modifies Reliability Standard PER-004-1, by deleting Requirements R2, R3, and R4 because more detailed, complete, and less ambiguous requirements addressing the same issues are now included as Requirements R3, R2, and R1, respectively, of new proposed Reliability Standard PER-005-1. A more detailed description of these changes appears below. Note that the remaining requirements in PER-004-1 are carried forward to PER-004-2 intact, including all associated VRF and VSL assignments, and are included herein for FERC approval.

Replacement of PER-004-1 Requirement R2 with PER-005-1 Requirement R3

PER-004-1 Requirement R2 provides:

> ***R2****.All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.*

In contrast, proposed Requirement R3 of PER-005-1 provides:

> ***R3.*** *At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*
>
> > ***R3.1.*** *Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.*

Because the proposed PER-005-1 Requirement R3 addresses the training requirement pertaining to duration and drills, simulations, and exercises formerly described in PER-004-1 Requirement R2, and because the provisions of PER-004-1 Requirement R2 would now be redundant and potentially conflict with the more precise

requirements of PER-005-1 Requirement R3, proposed PER-004-2 has been modified to remove Requirement R2, with the associated renumbering of the remaining requirements. These changes are consistent with NERC Reliability Standard objectives to eliminate redundancy and ambiguity in existing Reliability Standards.

Replacement of PER-004-1 Requirements R3 and R4 with PER-005-1 Requirements R1 and R2

Currently, PER-004-1 Requirements R3 and R4 provide:

> ***R3.*** *Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.*
>
> ***R4.*** *Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.*

Proposed Reliability Standard PER-004-2 modifies the previously approved standard to remove these requirements, because they are more fully addressed by Requirements R1 and R2 of PER-005-1. Requirements R1 and R2 of proposed Reliability Standard PER-005-1 are as follows:

> ***R1.*** *Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*
>
> > ***R1.1.*** *Each Reliability Coordinator, Balancing Authority and Transmission Operator shall create a list of BES company-specific reliability-related tasks performed by its System Operators.*
> >
> > > ***R1.1.1.*** *Each Reliability Coordinator, Balancing Authority and Transmission Operator shall update its list of BES company-specific reliability-related tasks performed by its System Operators each calendar year to identify new or modified tasks for inclusion in training.*

R1.2. *Each Reliability Coordinator, Balancing Authority and Transmission Operator shall design and develop learning objectives and training materials based on the task list created in R1.1.*

R1.3. *Each Reliability Coordinator, Balancing Authority and Transmission Operator shall deliver the training established in R1.2.*

R1.4. *Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of the training program established in R1, to identify any needed changes to the training program and shall implement the changes identified.*

R2. *Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time. [Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

R2.1. *Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks.*

c. Basis for Retirement of PER-002-0 — Operating Personnel Training – Staffing

The Requirements of FERC-approved Reliability Standard PER-002-0 have been completely replaced and supplanted by the specific provisions of proposed new Reliability Standard PER-005-1. Retirement of PER-002-0, upon the effective date of PER-005-1 is necessary to avoid redundancy, conflict, and confusion regarding the mandatory training standards.

V. PROPOSED RELIABILITY STANDARDS' COMPLIANCE WIH THE DIRECTIVES IN FERC ORDER NO. 693

When FERC approved Reliability Standard PER-002-2 in Order No. 693, it directed that modifications be made through the Reliability Standards development process. Those modifications were addressed in the development of the Reliability Standards proposed for approval in this filing. FERC's directives, summarized in Paragraphs 1393 and 1394 of Order No. 693, are addressed below. In cases where the

approach in the Reliability Standards proposed in this filing deviate from the FERC directives, justification is offered to support an approach that is an equal and effective alternative to achieve the same reliability objective.

1. Identify the Expectations of Training for Each Job Function and Develop Training Programs Tailored to Each Job Function.

In Order No. 693, FERC directed NERC to identify the expectations of the training for each job function, and develop training programs tailored to each job function with consideration of the individual training needs of the personnel.[16] FERC noted that, in its inclusion of a formal training program for local control center personnel, this program should be tailored to the functions local control center operators, generator operations, and operations planning staff performing functions that impact the reliable operation of the bulk power system for both normal and emergency operations.[17]

Requirement R1 of the proposed PER-005-1 Reliability Standard requires each responsible entity to create a list of bulk power system company-specific reliability-related tasks performed by its System Operators. The responsible entity then uses the task list to design and develop learning objectives and training materials, thereby identifying the expectations of the training for each job function (or collection of tasks). By doing so, the proposed standard provides the opportunity for entities to develop training programs that are tailored to each job function with specific consideration to individual training needs. Similarly, Requirement R1.2 further adds that entities are required to design and develop learning objectives and training materials based on the task list, thereby identifying the expectations of the training for each job function (or collection of tasks).

[16] Order No. 693 at P 1393.
[17] *Id.* at P 1348.

As stated in the purpose of this proposed standard, the intent of these requirements is to ensure that properly trained individuals are operating the bulk power system. The proposed standard helps to achieve that purpose by providing the structure necessary to accomplish this intent while also ensuring that a means of evaluating the capability of the individual to perform each assigned task can be adequately determined. Accordingly, because the proposed standard requires that the training requirements be identified by task, the proposed Reliability Standard appropriately identifies the expectations of the training for each job function that is tailored to the functions of local control center personnel performing tasks related to the reliable operation of the bulk power system for both normal and emergency operations.

2. Expand the Applicability Section of the Proposed Reliability Standard to include Reliability Coordinators, Local Transmission Control Center Operating Personnel, Generator Operators Centrally-located at a Generator Control Center with Direct Impact on the Reliable Operation of the Bulk Power System, and Operations Planning and Operations Support Staff that carry out Outage Planning and Assessments and those who Develop SOLs, IROLs, or Operating Nomograms.

In Order No. 693, FERC required that the Applicability section of the PER-002-0 Reliability Standard be expanded to include Reliability Coordinators, local transmission control center operating personnel, Generator Owners centrally located at a generator control center with direct impact on the reliable operation of the bulk power system, and operations planning and operations support staff who carry out outage planning and assessments, and those who develop System Operating Limits ("SOLs"), IROLs, or operating nomograms for real-time operations.[18] The proposed PER-005-1 Reliability Standard has been expanded to include Reliability Coordinators as an applicable entity, and also includes Balancing Authorities and Transmission Operators.

[18] *Id.* at P 1393.

Generator Owners, operations planning, and operations support staff were not included in the scope of the development of the Reliability Standards proposed in this filing, and instead are included in the scope of Project 2010-1 – Support Personnel Training, which is part of NERC's *Reliability Standards Development Plan: 2009-2011*. The inclusion of these entities in the standards proposed here would have necessitated expansion of the Standard Drafting Team roster to ensure these disciplines were fairly represented. NERC elected to complete the core activities as identified in the project scope and obtain FERC approval on the proposed standards now rather than further delay the completion of this important set of standards. However, NERC plans to address the expansion of the training standard to other entities through a separate project team.

In determining how to apply FERC's guidance in expanding the Applicability section to local transmission control center operating personnel, the team referred to guidance provided in the NERC Drafting Team Guidelines to address this issue. As provided in this guideline document, the Applicability section must identify the functional entities (from the NERC Reliability Functional Model[19]) that are required to comply with the requirements in a proposed Reliability Standard. In its analysis, the team agreed that the NERC Reliability Functional Model accurately captures the list of functions that a Transmission Operator performs, and therefore includes those performed by local control center personnel. Accordingly, the team determined that if all entities register based on the guidance provided in NERC's *Statement of Compliance Registry Criteria,* FERC's directive in Order No. 693 will be appropriately addressed because the Transmission Operator has the ultimate responsibility to ensure that its functional responsibilities are met, even if through other entities.

[19] The NERC Reliability Functional Model is available at http://www.nerc.com/page.php?cid=2|247|108.

3. Use the Systematic Approach to Training Methodology in the Development of New Training Programs.

In Order No. 693, FERC states that a Systematic Approach to Training is a proven approach to: identify the tasks and associated skills and knowledge necessary to accomplish those tasks; determine the competency levels of each operator to carry out those tasks; determine the competency gaps; and design, implement, and evaluate a training plan to address each operator's competency.[20] Accordingly, FERC directed that NERC develop a modification to the PER-002-2 Reliability Standard, or a new Reliability Standard, that uses the Systematic Approach to Training methodology.[21]

Proposed Reliability Standard PER-005-1, Requirement R1 requires that each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a systematic approach to training to establish a training program for the bulk power system company-specific reliability-related tasks performed by its System Operators. Accordingly, FERC's directive that a Systematic Approach to Training be used is met in the proposed Reliability Standard.

4. Include the Use of Simulators by Reliability Coordinators, Transmission Operators, and Balancing Authorities that have Operational Control over a Significant Portion of Load and Generation.

In Order No. 693, FERC stated that hands-on training using simulators can add significant value to training for emergencies and can add significant reliability benefits if Reliability Coordinators, Transmission Operators, and Balancing Authorities that have operational control of a significant portion of load and generation are required to obtain

[20] *Id.* at P 1380.
[21] *Id.* at P. 1382.

simulator training.[22] FERC noted that, because the cost is likely to outweigh the reliability benefits for small entities, small entities can continue to use training aids such as generic operator training simulators and realistic table-top exercises.[23] However, FERC directed that NERC develop a requirement for the use of simulators dependant on the entity's role and size.[24]

Proposed Reliability Standard PER-005-1 Requirement R3.1 states "Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions." This allows entities the flexibility to utilize the most current technology available that replicates the operational behavior of the bulk power system.

The team determined that the proposed language in Requirement R3.1 is an equal and effective approach in meeting FERC's directives in Order No. 693 because the proposed standard requires simulator training for entities that have operational control of a significant portion of load and generation, while balancing the costs of simulator training on small entities. In developing the proposed standard, the team identified Reliability Coordinators, Transmission Operators and Balancing Authorities that have operational authority or control over facilities with established IROLs or that have established operating guides or protection systems to mitigate IROL violations as entities

[22] *Id.* at P 1390.
[23] *Id.* at P 1391.
[24] *Id.*

with operational control over a significant portion of load and generation. IROLs, if exceeded, could expose a widespread area of the bulk power system to instability, uncontrolled separation(s) or cascading outages. For this reason, the standard drafting team believed that focusing on IROLs was an equal and effective method for determining those entities that are required to use simulator/simulation technology in their training programs to that directed by FERC in Order No. 693.

5. Determine the Feasibility of Developing Meaningful Performance Metrics Associated with the Effectiveness of the Training Programs.

In Order No. 693, FERC directed NERC to determine whether it is feasible to develop meaningful performance metrics associated with the effectiveness of a training program, and if so, to develop such performance metrics.[25] In its analysis of FERC's directive, the team considered the effectiveness of the systematic approach to training and whether this provides meaningful performance metrics associated with the effectiveness of a training program.

The team determined that the systematic approach to training requires evaluation against stated objectives, as required in proposed Reliability Standard PER-005-1, Requirement R1.4. That is, Requirement R1.4 requires each Reliability Coordinator, Balancing Authority, and Transmission Operator to conduct an annual evaluation of the training program established in Requirement R1 to identify any needed changes to the training program and implement the changes identified. Therefore, the systematic approach to training and the requirement for entities to assess whether their System Operators are receiving effective training provides a meaningful assessment of the

[25] *Id.* at P 1394.

training program. An evaluation of how System Operators perform during infrequent, actual events on the system would not provide useful metrics on an ongoing basis.

Additionally, the team clarified that proposed Reliability Standard PER-005-1 is a training standard that identifies what a trainee should do and evaluates the training program against that standard, as described in PER-005-1, Measure M1.4. This standard is not intended to address individual System Operator performance apart from the requirements associated with the company-specific reliability-related tasks identified in Requirement R1.

6. Consider whether Personnel that Support EMS Applications should be included in the Mandatory Training Requirements.

FERC directed NERC to consider through the Reliability Standards Development Process the question of whether personnel that support EMS applications should be included in mandatory training.[26] This issue is being addressed in Project 2010-01 Support Personnel Training.

7. Consider FirstEnergy's Comments regarding the Nuclear Plant Operators' Training Program as part of the Standards Development Process.

In Order No. 693, FERC directed NERC to consider FirstEnergy's comment that nuclear power plant operators already subject to NRC training requirements should therefore satisfy the requirements of a NERC Reliability Standard regarding training programs. This is being addressed in Project 2010-01 Support Personnel Training.

8. Include Requirements Pertaining to Personnel Credentials for Reliability Coordinators similar to PER-003.

In Order No. 693, FERC directed NERC to include in the proposed standard requirements pertaining to personnel credentials for Reliability Coordinators similar to

[26] *Id.*

those in PER-003-0.[27] This issue is being addressed in Project 2007-04 Certifying System Operators.

9. Consider the Suggestions of FirstEnergy and Xcel as part of the Standards Development Process.

In Order No. 693, FERC directed NERC to consider the suggestions of FirstEnergy and Xcel in the Reliability Standards development process.[28] FirstEnergy sought revisions to the terms "shall have a comprehensive understanding of" and "shall have extensive knowledge" because it will be difficult for entities to demonstrate compliance with these terms.[29] After its review of these terms, the team determined that this language should not be included in the proposed PER-005-1 Reliability Standard. Rather, the Standard Drafting Team believed that the credentials inherent in the terms "shall have comprehensive understanding of" and "shall have extensive knowledge" would be evident once an entity developed its Reliability Coordinators' company-specific reliability-related tasks, as required in Requirement R1 of proposed PER-005-1.

Xcel suggested that the emergency training requirements be expressed in hour increments rather than days to allow for flexibility in scheduling training and coordinating with rotating shift schedules.[30] As a result, the language in proposed PER-005-1 Requirement R3 now requires that System Operators obtain at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, rather than the five days that is included in the current version of the Reliability Standard.

[27] *Id.* at P 1415.
[28] *Id.* at P 1417.
[29] *Id.* at P 1413.
[30] *Id.* at P 1414.

For the reasons stated above, NERC believes the proposed Reliability Standards PER-004-2 and PER-005-0 provide significant improvement to bulk power system System Operator training programs and address a key recommendation from the 2003 U.S./Canada Blackout Report and other prior large-scale blackouts.

VI. SUMMARY OF THE RELIABILITY STANDARD DEVELOPMENT PROCEEDINGS

a. Development History

The Standards Authorization Request ("SAR") for a new training standard, sponsored by the NERC Personnel Subcommittee, was posted for two 30-day comment periods, from December 7, 2004 through January 7, 2005, and from February 17, 2006 through March 20, 2006. The refinements to the SAR narrowed the list of applicable entities to the Reliability Coordinator, Transmission Operator and Balancing Authority and narrowed the focus to using the systematic approach to training System Operators to ensure that System Operators are competent to perform real-time reliability-related tasks.

The Standard Drafting Team posted the draft standard for four public comment periods. The initial draft of the standard was posted for a 30-day comment period, from September 27, 2006 through October 26, 2006. A generic task list, organized by task, was posted with the standard. There were 58 sets of comments, including comments from 174 people representing 91 different entities from all NERC Regions and six of the nine Industry Segments. The initial draft of the standard was very detailed and included a requirement for each of the specified steps to employing a "structured approach to training." Many stakeholders indicated that these individual requirements should be consolidated into a single requirement, and the team agreed. The team removed separate requirements targeted for entry-level training, a requirement that exceeded the scope of

the SAR. The team also addressed qualifications of persons developing or delivering training, and removed requirements for extensive documentation of each training activity and maintenance of training materials.

The second draft of the standard was posted for a 45-day public comment period, from August 15, 2007 through September 28, 2007. There were 43 sets of comments, including comments from 130 different people from more than 70 companies representing 9 of the now 10 Industry Segments. Based on stakeholder comments, the drafting team modified the standard extending the effective date for emergency operations training from "effective immediately" to effective 36 months after regulatory approval." The drafting team further modified the requirements to specify that the company-specific reliability-related task lists must be updated at least annually and that an additional assessment must be performed as the task list is modified. In addition, the drafting team modified the standard to include the use of simulators for emergency operations training.

The third draft of the standard was posted for a 45-day public comment period from February 25, 2007 through April 9, 2007. There were 51 sets of comments, including comments from more than 100 different people from approximately 100 companies representing 9 of the 10 Industry Segments. Based on stakeholder comments, the drafting team modified the standard reducing the effective dates for two of the requirements from 36 months after regulatory approval to 24 months after regulatory approval. The drafting team also modified the standard mandating system restoration training and clarified the methods of training that could be used as part of its emergency operations training. The team further modified the emergency operations training using

simulators to emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the behavior of the bulk power system during normal and emergency operations.

The fourth draft of the standard was posted for a 30-day comment period from June 18, 2008 through July 17, 2008. There were 41 sets of comments, including comments from more than 140 different people from approximately 70 companies representing 8 of the 10 Industry Segments. The drafting team made only minor changes to improve clarity following the fourth posting.

The team finalized the proposed Reliability Standards, and presented them for Standards Committee approval for balloting. In accordance with the *Reliability Standard Development Procedure*, NERC posted the proposed Reliability Standard for a 30-day pre-ballot review from September 26, 2008 through October 25, 2008. The first ballot took place October 27, 2008 through November 5, 2008. During the first ballot, 90.13% of those registered for the ballot pool voted, which exceeded the minimum 75% quorum required to be considered a valid vote. The proposed Reliability Standard received a weighted segment approval of 82.47%. However, there were negative ballots submitted with a comment, triggering the need for a recirculation ballot. The majority of the negative voters expressed concerns surrounding the two (2) year implementation time frame, the treatment of existing training programs and mandating of the use of simulators.

The drafting team explained that the need for improvements to System Operator training was identified in the 2003 Blackout Report and that an entity would conceivably have more than two (2) years to implement the program based on the process utilized to

gain regulatory approval of a standard. Concerning the treatment of existing training programs, the team explained that existing training programs would have to be verified against the Standard to ensure compliance with the use of a systematic approach to training. The drafting team also explained that the use of a simulator was a directive from FERC Order No. 693 and that the team had expanded the concept of using a simulator to include simulation technology, virtual technology or other technology that replicates the operational behavior of the bulk power system to increase flexibility for an organization to meet the requirement of the standard using the most cost effective solution. The drafting team further explained that it proposed the following language as delineating factors for determining those entities that must use simulation technology in their training programs; "…that has operational authority or control over facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations…" This language was proposed as an alternative that is an equally efficient and effective method of achieving the intent of the FERC Order No. 693 directive to include "the use of simulators by Reliability Coordinators, Transmission Operators and Balancing Authorities that have operational control over a significant portion of load or generation."

After the standard drafting team responded to the comments, the proposed Reliability Standard proceeded to a recirculation ballot that was conducted from December 12, 2008 through December 22, 2008. The proposed Reliability Standard passed with a final quorum of 91.48% and a weighted segment approval of 80.63%. A two-thirds weighted segment approval is required for passage. On February 10, 2009, the NERC Board of Trustees adopted the proposed Reliability Standard.

b. Key Issues

During the development of the proposed Reliability Standard, the standard drafting team considered three major issues raised by stakeholders that are discussed in this section: (i) the need for a new training standard, (ii) the use of a systematic approach to training methodology, and (iii) the use of simulators in training programs.

Need for a New Training Standard

There are several stakeholders who do not believe that the proposed standards are needed. They list cost and lack of resources as primary reasons for not supporting the standard. Some indicate that existing training programs are sufficient. The drafting team reminded these stakeholders that a lack of training was one of the contributing causes of the 2003 blackout and that FERC Order No. 693 Appendix D established that Operating Personnel Training is a "High Priority Standard."

Use of a Systematic Approach to Training

Several stakeholders indicated that the standard should not specify the use of the systematic approach to training process. Many of the stakeholders that objected to the use of the systematic approach to training process either did not understand the process or did not want to revise their existing programs to fit the systematic approach to training process. The drafting team explained that this was a training process that has been widely recognized in many different occupational fields as an effective and efficient method of linking training to specific performance on designated tasks. The SAR for this project specified that the requirements in the standard must mandate use of the systematic approach to training process and that one of the directives in FERC Order No. 693 was to

modify the existing training standard to require the use of the systematic approach to training methodology in the development training programs.

In addition, several stakeholders felt the drafting team was trying to prescribe a certain systematic approach to training process while others requested that the drafting team add more specificity to the standard regarding the term systematic approach to training. The drafting team explained that there are several different terms used to describe this approach to developing training programs. The drafting team felt that adding a definition would restrict the use of certain valid approaches and force some entities into modifying their existing practices, without any additional benefit to reliability. There are many variations to the systematic approach to training process, but all include the steps identified in sub-requirements R1.1 through R1.4. The team assembled a list of references covering the systematic approach to training process and posted these for stakeholders.

Use of a Simulator

Some stakeholders did not support the requirement to use a simulator or simulation technology for training and argued that the use of simulators should not be mandatory because of the cost associated with staffing, development and maintenance of simulator/simulation technology. Order No. 693 included a directive to modify the existing training standard to include the use of simulators by Reliability Coordinators, Transmission Operators and Balancing Authorities that have operational control over a significant portion of load and generation. The use of simulators/simulation technology as effective training tools, particularly for learning how to react to events that occur infrequently, is widely accepted in other industries as an effective and efficient method of

providing training and practice. Simulators/simulator technology is used by personnel in many industries where the ramifications of an error have far-reaching consequences to safety – including airline pilots, shipping pilots, and operators of control systems in chemical, oil and gas industries.

VII. CONCLUSION

NERC requests that FERC approve PER-005-1 — System Personnel Training and PER-004-2 — Reliability Coordination – Staffing, as set out in **Exhibit A**, in accordance with Section 215(d)(1) of the FPA and Part 39.5 of FERC's regulations. NERC requests that, upon the effective date of the proposed standards identified in the respective implementation plans, FERC concurrently retire existing Reliability Standards PER-002-0 — Operating Personnel Training, and PER-004-1 — Reliability Coordination – Staffing. In addition, NERC requests FERC approval for proposed VRFs and VSLs for PER-005-1 and to carry forward the VRFs and VSLs currently assigned to the existing FERC-approved PER-004-1 for use in the proposed version 2 of that Reliability Standard included in this filing, subject to the outcome of NERC's review of all VSLs pursuant to FERC's four VSL guidelines, which will be filed by NERC in FERC Docket Nos. RR08-4-000, RR08-4-001, and RR08-4-002. NERC requests these proposed standards be made effective under FERC's procedures in accordance with the implementation plan provided with the Reliability Standard.

Respectfully submitted,

/s/ Holly A. Hawkins

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CERTIFICATE OF SERVICE

I hereby certify that I have served a copy of the foregoing document upon all parties listed on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C. this 30th day of September, 2009.

/s/ Holly A. Hawkins
Holly A. Hawkins

Attorney for North American Electric Reliability Corporation

Exhibit A

Reliability Standards Proposed for Approval

A. Introduction

1. Title: **System Personnel Training**

2. Number: PER-005-1

3. Purpose: To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent to perform those reliability-related tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.

4. Applicability:

4.1. Functional Entities:

4.1.1 Reliability Coordinator.

4.1.2 Balancing Authority.

4.1.3 Transmission Operator.

5. Proposed Effective Date for Regulatory Approvals:

5.1. In those jurisdictions where regulatory approval is required, Requirement R1 and Requirement R2 shall become effective on the first day of the first calendar quarter, 24 months after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, Requirement R1 and Requirement R2 shall become effective on the first day of the first calendar quarter, 24 months after Board of Trustees adoption.

5.2. In those jurisdictions where regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after Board of Trustees adoption.

5.3. In those jurisdictions where regulatory approval is required Sub-requirement R3.1 shall become effective on the first day of the first calendar quarter, 36 months after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, the Sub-requirement R3.1 shall become effective on the first day of the first calendar quarter, 36 months after Board of Trustees adoption.

B. Requirements

R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall create a list of BES company-specific reliability-related tasks performed by its System Operators.

R1.1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall update its list of BES company-specific reliability-related tasks performed by its System Operators each calendar year to identify new or modified tasks for inclusion in training.

R1.2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall design and develop learning objectives and training materials based on the task list created in R1.1.

R1.3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall deliver the training established in R1.2.

R1.4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of the training program established in R1, to identify any needed changes to the training program and shall implement the changes identified.

R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

R2.1. Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks.

R3. At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R3.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

C. Measures

M1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence of using a systematic approach to training to establish and implement a training program, as specified in R1.

M1.1 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its company-specific reliability-related task list, with the date of the last review and/or revision, as specified in R1.1.

M1.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and training materials, as specified in R1.2.

M1.3 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection System Operator training records showing the names of the people trained, the title of the training delivered and the dates of delivery to show that it delivered the training, as specified in R1.3.

M1.4 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence (such as instructor observations, trainee feedback, supervisor feedback, course evaluations, learning assessments, or internal audit results) that it performed an annual training program evaluation, as specified in R1.4

M2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence to show that it verified that each of its System Operators is

capable of performing each assigned task identified in R1.1, as specified in R2. This evidence can be documents such as training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments.

M3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator has obtained 32 hours of emergency operations training, as specified in R3.

M3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator received emergency operations training using simulation technology, as specified in R3.1.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

1.2. Compliance Monitoring Period and Reset

Not Applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance for three years or since its last compliance audit, whichever time frame is the greatest, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.

If a Reliability Coordinator, Balancing Authority and Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1	None	The responsible entity failed to provide evidence that it updated its company-specific reliability-related task list to identify new or modified tasks each calendar year (R1.1.1) OR The responsible entity failed to provide evidence of evaluating its training program to identify needed changes to its training program(s). (R1.4)	The responsible entity failed to design and develop learning objectives and training materials based on the BES company specific reliability related tasks. (R1.2)	The responsible entity failed to prepare a company-specific reliability-related task list (R1.1) OR The responsible entity failed to deliver training based on the BES company specific reliability related tasks. (R1.3)
R2	None	The responsible entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)	The responsible entity verified at least 70% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks (R2) OR The responsible entity failed to verify its system operator's capabilities to perform each new or modified task within six months of making a modification to its BES company-specific reliability-related task list. (R2.1)	The responsible entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)
R3	None	The responsible entity provided at least 32 hours of emergency operations training to at least 90% but less than 100% of their System Operators. (R3)	The responsible entity provided at least 32 hours of emergency operations training to at least 70% but less than 90% of its System Operators. (R3)	The responsible entity provided 32 hours of emergency operations training to less than 70% of its System Operators (R3) OR The responsible entity did not include simulation technology replicating the operational behavior of the BES in its emergency operations training. (R3.1)

E. Regional Variances

None.

Version History

Version	Date	Action	Change Tracking

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. Standards Committee approves SAR for posting on December 1, 2004.
2. SAR Drafting Team posted SAR for comments on December 7, 2004.
3. SAR Drafting Team responds to comments, revises SAR, and posts revised SAR for comments on February 17, 2006.
4. SAR Drafting Team responds to comments and revises SAR on May 15, 2006.
5. Standards Committee approves development of Standard on May 15, 2006.
6. The Standards Authorization Committee appointed the Standard Drafting Team on June 21, 2006.
7. Standards Drafting Team posted draft standard for comment on September 27, 2006.
8. Standards Drafting Team responded to comments and posted the revised standard on August 15, 2007.
9. Standard Drafting Team responded to comments and posted the revised standard for comment on February 15, 2008.
10. Standards Drafting Team responded to comments and posted the revised standard for comment on June 18, 2008.
11. Standards Drafting Team responded to comments from the fourth posting and will request the Standards Committee to move the standard forward to balloting on September 15, 2008.

Proposed Action Plan and Description of Current Draft:
This is the fifth version of the proposed standard and its associated implementation plan that has been posted for industry comments. The drafting team will be requesting the Standards Committee to move the standard forward to balloting.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments on the fourth draft of the proposed standard.	September 15, 2008
2. Obtain the Standards Committee's approval to move the standard forward to balloting.	September 15, 2008
3. Post the standard and implementation plan for a 30-day pre-ballot review.	September 17, 2008
4. Conduct an initial ballot for ten days.	October 17, 2008
5. Respond to comments submitted with the initial ballot.	November 1, 2008
6. Conduct a recirculation ballot for ten days.	November 11, 2008
7. Post for a 30-day preview for board.	November 21, 2008
8. BOT adoption.	December 22, 2008

A. Introduction

1. Title: **System Personnel Training**

2. Number: PER-005-1

3. Purpose: To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent to perform those reliability-related tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.

4. Applicability:

4.1. Functional Entities:

4.1.1 Reliability Coordinator.

4.1.2 Balancing Authority.

4.1.3 Transmission Operator.

5. Proposed Effective Date for Regulatory Approvals:

5.1. In those jurisdictions where regulatory approval is required, Requirement R1 and Requirement R2 shall become~~s~~ effective on the first day of the first calendar quarter, 24 months after ~~the first day of the first calendar quarter following~~ applicable regulatory approval. ~~, or i~~In those jurisdictions where no regulatory approval is required, Requirement R1 and Requirement R2 shall ~~the Reliability Standard~~ become~~s~~ effective on the first day of the first calendar quarter, 24 months after ~~the first day of the first calendar quarter after~~ Board of Trustee~~s~~ adoption.

5.2. In those jurisdictions where regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after Board of Trustees adoption.~~Requirement R3 is presently in effect and will remain in effect upon approval of this Standard.~~

5.3. In those jurisdictions where regulatory approval is required ~~S~~sub~~-R~~requirement R3.1 shall become~~s~~ effective on the first day of the first calendar quarter, 36 months after ~~the first day of the first calendar quarter following~~ applicable regulatory approval. ~~I, or i~~n those jurisdictions where no regulatory approval is required, ~~the S~~s~~s~~ub~~-~~requirement R3.1 shall become~~s~~ effective on the first day of the first calendar quarter, 36 months after ~~the first day of the first calendar quarter after~~ Board of Trustee~~s~~ adoption.

B. Requirements

R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall create a list of BES company-specific reliability-related tasks performed by its System Operators.

R1.1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall update its list of BES company-specific reliability-related

tasks performed by its System Operators each calendar year~~at least annually~~ to identify new or modified tasks for inclusion in training.

R1.2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall design and develop learning objectives and training materials based on the task list created in R1.1.

R1.3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall deliver the training established in R1.2.

R1.4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of the training program established in R1, to identify any needed changes to the training program and shall implement the changes identified.

R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

R2.1. Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks.

R3. At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel~~,~~. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R3.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

C. Measures

M1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence of using a systematic approach to training to establish and implement a training program, as specified in R1.

M1.1 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its company-specific reliability-related task list, with the date of the last review and/or revision, as specified in R1.1.

M1.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and training materials, as specified in R1.2.

M1.3 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection System Operator training records showing the names of the people trained, the title of the training delivered and the dates of delivery to show that it delivered the training, as specified in R1.3.

M1.4 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence (such as instructor observations, trainee

feedback, supervisor feedback, course evaluations, learning assessments, or internal audit results) that it performed an annual training program evaluation, as specified in R1.4

M2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence to show that it verified that each of its System Operators is capable of performing each assigned task identified in R1.1, as specified in R2. This evidence can be documents such as training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments.

M3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator has obtained 32 hours of emergency operations training, as specified in R3.

M3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator received emergency operations training using simulation technology, as specified in R3.1.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

1.2. Compliance Monitoring Period and Reset

Not Applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance for three years or since its last compliance audit, whichever time frame is the greatest, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.~~—~~.

If a Reliability Coordinator, Balancing Authority and Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.5. Additional Compliance Information

None.

~~2.~~Violation Severity Levels

2.

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1	None	The responsible entity failed to provide evidence that it updated its company-specific reliability-related task~~s~~ list to identify new or modified tasks each calendar year~~on an annual basis~~ (R1.1.1) OR The responsible entity failed to provide evidence of evaluating its training program to identify needed changes to its training program(s). (R1.4)	The responsible entity failed to design and develop learning objectives and training materials based on the BES company specific reliability related tasks ~~(when developing a new or modifying an existing training program)~~. (R1.2)	~~When developing a new or modifying an existing training program, t~~The responsible entity failed to prepare a company-specific reliability-related task~~s~~ list (R1.1) OR ~~When developing a new or modifying an existing training program t~~The responsible entity failed to deliver training based on the BES company specific reliability related tasks. (R1.3)
R2	None	The responsible entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)	The responsible entity verified at least 70% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks (R2) OR The responsible entity failed to verify its system operator's capabilities to perform each new or modified task within six months of making a modification to its BES company-specific reliability-~~-~~ related task~~s~~ list. (R2.1)	The responsible entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)

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R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R3	None	The responsible entity provided at least 32 hours of emergency operations training to at least 90% but less than 100% of their System Operators. (R3)	The responsible entity provided at least 32 hours of emergency operations training to at least 70% but less than 90% of its System Operators. (R3)	The responsible entity provided 32 hours of emergency operations training to less than 70% of its System Operators (R3) OR The responsible entity did not include simulation technology replicating the operational behavior of the BES in its emergency operations training. (R3.1)

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E. Regional Variances

None.

Version History

Version	Date	Action	Change Tracking

A. Introduction

1. Title: Reliability Coordination — Staffing

2. Number: PER-004-2

3. Purpose:

Reliability Coordinators must have sufficient, competent staff to perform the Reliability Coordinator functions.

4. Applicability

4.1. Reliability Coordinators.

5. Effective Date:

- Retire Requirement 2 when PER-005-1 Requirement 3 becomes effective.
- Retire Requirements 3 and 4 when PER-005-1 Requirements 1 and 2 become effective.

B. Requirements

R1. Each Reliability Coordinator shall be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

R2. Reliability Coordinator operating personnel shall place particular attention on SOLs and IROLs and inter-tie facility limits. The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times.

C. Measures

None

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an

extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

Each Reliability Coordinator shall keep evidence of compliance for the previous two calendar years plus the current year.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

1.4. Additional Compliance Information

None.

2. Levels of Non-Compliance for a Reliability Coordinator (Replaced with VSLs)

2.1.

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised
2		Retire R2 and M1 when PER-005-1 Requirement 3 becomes effective. Retire R3, R4 and M2 when PER-005 R1 and R2 become effective.	Revised

A. Introduction

1. **Title:** **Reliability Coordination — Staffing**

2. **Number:** PER-004-~~1~~2

3. **Purpose:**

   Reliability Coordinators must have sufficient, competent staff to perform the Reliability Coordinator functions.

4. **Applicability**

   4.1. Reliability Coordinators.

5. **Effective Date:** ~~January 1, 2007~~

   - Retire Requirement~~s~~ 2 ~~and 5 retired~~ when PER-005-1 Requirement 3 becomes effective.
   - ~~1.~~ Retire Requirements 3 and 4 ~~retired~~ when PER-005-1 Requirements 1 and 2 become effective.

B. Requirements

R1. Each Reliability Coordinator shall be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

~~R2. All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.~~

~~R3. Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.~~

~~R4. Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.~~

R2. Reliability Coordinator operating personnel shall place particular attention on SOLs and IROLs and inter-tie facility limits. The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times.

C. Measures

None

~~**M1.** The Reliability Coordinator shall have and provide upon request training records that confirm that each of its operating personnel has completed a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel, as specified in Requirement 2.~~

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M2. Each Reliability Coordinator shall have and provide upon request evidence that could include but is not limited to, a documented training program and individual training records for each of its operating personnel or other equivalent evidence that will be used to confirm that it meets Requirements 3 and 4.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

Each Reliability Coordinator shall keep evidence of compliance for the previous two calendar years plus the current year.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

1.4. Additional Compliance Information

None.

2. Levels of Non-Compliance for a Reliability Coordinator (Replaced with VSLs)

2.1. **Level 1:** Not applicable.

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2.2. **Level 2:** Not applicable.

2.3. **Level 3:** Not applicable.

2.4.2.1. **Level 4:** There shall be a separate Level 4 non-compliance, for every one of the following requirements that is in violation:

2.4.1 One or more of its shift operating personnel did not complete a minimum of five days per year of training and drills using realistic simulations of system emergencies in the past year. (R2)

2.4.2 No evidence operating personnel have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas. (R3)

2.4.3 No evidence operating personnel have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area. (R4)

E. Regional Differences

1. None identified.

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Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised
2		Retire R2 and M1 when PER-005-1 Requirement 3 becomes effective. Retire R3, R4 and M2 when PER-005 R1 and R2 become effective.	Revised

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The SPT SDT recommends that this entire standard be retired when PER-005 becomes effective.

A. Introduction

1. **Title:** **Operating Personnel Training**

2. **Number:** PER-002-0

3. **Purpose:** Each Transmission Operator and Balancing Authority must provide their personnel with a coordinated training program that will ensure reliable system operation.

4. **Applicability**

   4.1. Balancing Authority.

   4.2. Transmission Operator.

5. **Effective Date:** April 1, 2005

B. Requirements

R1. Each Transmission Operator and Balancing Authority shall be staffed with adequately trained operating personnel.

R2. Each Transmission Operator and Balancing Authority shall have a training program for all operating personnel that are in:

R2.1. Positions that have the primary responsibility, either directly or through communications with others, for the real-time operation of the interconnected Bulk Electric System.

R2.2. Positions directly responsible for complying with NERC standards.

R3. For personnel identified in Requirement R2, the Transmission Operator and Balancing Authority shall provide a training program meeting the following criteria:

R3.1. A set of training program objectives must be defined, based on NERC and Regional Reliability Organization standards, entity operating procedures, and applicable regulatory requirements. These objectives shall reference the knowledge and competencies needed to apply those standards, procedures, and requirements to normal, emergency, and restoration conditions for the Transmission Operator and Balancing Authority operating positions.

R3.2. The training program must include a plan for the initial and continuing training of Transmission Operator and Balancing Authority operating personnel. That plan shall address knowledge and competencies required for reliable system operations.

R3.3. The training program must include training time for all Transmission Operator and Balancing Authority operating personnel to ensure their operating proficiency.

R3.4. Training staff must be identified, and the staff must be competent in both knowledge of system operations and instructional capabilities.

R4. For personnel identified in Requirement R2, each Transmission Operator and Balancing Authority shall provide its operating personnel at least five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.

C. Measures

M1. The Transmission Operator and Balancing Authority operating personnel training program shall be reviewed to ensure that it is designed to promote reliable system operations.

D. Compliance

1. Compliance Monitoring Process

Periodic Review: The Regional Reliability Organization will conduct an on-site review of the Transmission Operator and Balancing Authority operating personnel training program every three years. The operating personnel training records will be reviewed and assessed compared to the program curriculum.

1.1. Compliance Monitoring Responsibility

Self-certification: The Transmission Operator and Balancing Authority will annually provide a self-certification based on Requirements R1 through R4.

1.2. Compliance Monitoring Period and Reset Timeframe

One calendar year.

1.3. Data Retention

Three years.

1.4. Additional Compliance Information

Not specified.

2. Levels of Non-Compliance

2.1. Level 1: N/A.

2.2. Level 2: The Transmission Operator or Balancing Authority operating personnel training program does not address all elements of Requirement R3.

2.3. Level 3: The Transmission Operator or Balancing Authority operating personnel training program does not address Requirement R4.

2.4. Level 4: A Transmission Operator or Balancing Authority has not provided a training program for its operating personnel.

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Proposed Effective Date	Errata

Exhibit B

Record of Development of Proposed Reliability Standards

System Personnel Training (Project 2006-01)

Registered Ballot Body | Related Files | Drafting Team Rosters

Status

The ballot has passed and will be submitted to the NERC Board of Trustees for approval.

Purpose/Industry Need

A training standard is required to set the minimum acceptable requirements for the development, implementation and maintenance of initial and continuing System Personnel Training programs.

This standard is needed to help insure that system personnel throughout the industry are provided with an adequate amount of training in order to promote the reliability and adequacy of the North American Interconnections and their bulk electrical systems.

Proposed Standard	Supporting Materials	Comment Period	Comments Received	Response to Comments
Announcement **(65)** Draft 5 System Personnel Training Standard Posted for 10-day Recirculation Ballot Window PER-005-1 Clean **(66)** | Redline **(67)** to last posting PER-004-2 Clean **(68)** | Redline **(69)** to last approval PER-002-0 **(70)** - For Retirement	Implementation Plan Clean **(71)** | Redline **(72)** Revised PER-005 Reference Document **(73)**	12/12/08 - 12/22/08 (closed) 10-day Recirculation Ballot		Announcement **(74)** Ballot Results **(75)**
Announcement **(61)** Draft 5 System Personnel Training Standard Posted for 10-day Ballot Window **(same as 53-57)** PER-005-1 Clean | Redline to last posting PER-004-2 Clean | Redline to last approval PER-002-0 - For Retirement	**(same as 58-60)** Implementation Plan Clean | Redline to last posting PER-005 Reference Document	10/27/08 – 11/05/08 (closed) Ballot		Announcement **(62)** Ballot Results **(63)** Consideration of Comments **(64)**

Announcement **(52)** Draft 5 System Personnel Training Standard Posted for 30-day Pre-ballot Review and Join Ballot Pool PER-005-1 Clean **(53)** | Redline **(54)** to last posting PER-004-2 Clean **(55)** | Redline **(56)** to last approval PER-002-0 **(57)** - For Retirement	Implementation Plan Clean **(58)** | Redline **(59)** to last posting PER-005 Reference Document **(60)**	09/26/07 – 10/25/08 (closed) Join Ballot Pool		
Announcement **(40)** Draft 4 System Personnel Training Standard Posted for a 30-day Comment Period PER-005-1 Clean **(41)** | Redline **(42)** to last posting PER-004-1 Clean **(43)** | Redline **(44)** to last approval PER-002-0 **(45)** - For Retirement	Implementation Plan Clean **(46)** | Redline **(47)** to last posting PER-005 Reference Document **(48)**	06/18/08 – 07/17/08 (closed) 30-day Comment Period Electronic Comment Form (same as 49) Comment Form in Word Format **(49)**	Comments (same as 50) (Please select icon in the left hand column to see individual response.) Comments **(50)** (Acrobat)	Consideration of Comments **(51)**
Announcement **(29)** Draft 3 System Personnel Training Standard Posted for a 45-day Comment Period PER-005-1 Clean **(30)** | Redline **(31)** to last posting PER-004-1 Clean **(32)**| Redline **(33)** to last approval PER-002-0 **(34)** - For Retirement	Implementation Plan **(35)** PER-005 System Operator Training Reference Document **(36)**	02/25/08 - 04/09/08 (closed) Comment Form (same as 37) Comment Form Questions **(37)**	Comments **(38)**	Consideration of Comments **(39)**

Announcement **(27)**		08/15/07 - 08/29/07 (closed) Nomination Form **(28)**		
Announcement **(18)** Draft 2 System Personnel Training Standard Posted for 45-day Comment Period PER-005-1 **(19)** PER-004-1 Clean **(20)**| Redline **(21)** to last posting	Implementation Plan **(22)** PER-005 System Operator Training Reference Document **(23)**	08/15/07 - 09/28/07 (closed) Comment Form **(24)**	Comments **(25)**	Consideration of Comments **(26)**
Announcement **(12)** Draft 1 System Personnel Training Standard Posted for 30-day Comment Period SO Training Standard **(13)**	Implementation Plan **(14)** Generic System Operator Task List (Excel) **(15)**	09/27/06 - 10/26/06 (closed)	Comments **(16)**	Consideration of Comments **(17)**
Announcement **(9)** System Personnel Training SAR Final SAR Version 3 **(10)**		Nomination Form **(11)** Due 06/01/06 (closed)		
System Personnel Training SAR Posted for Comment Draft SAR Version 2 **(5)**	Project Plan **(6)**	02/17/06 - 03/20/06 (closed)	Comments **(7)**	Consideration of Comments **(8)**
Draft SAR Version 1 **(1)**	Project Plan **(2)**	12/07/04 - 01/07/05 (closed)	Comments **(3)**	Consideration of Comments **(4)**

When completed, email to: gerry.cauley@nerc.net

Standard Authorization Request Form

Title of Proposed Standard	System Personnel Training
Request Date	07/01/2004 Revised 12/01/04

SAR Requestor Information		**SAR Type** (Put an 'x' in front of one of these selections)	
Name	NERC Personnel Subcommittee	☒	New Standard
Primary Contact	Earl Cass, Chair NERC PS	☐	Revision to existing Standard
Telephone	605-882-7550	☐	Withdrawal of existing Standard
Fax	605-882-7453		
E-mail	cass@wapa.gov	☐	Urgent Action

Purpose/Industry Need (Provide one or two sentences)

A training standard is required to set the minimum acceptable requirements for the development, implementation and maintenance of initial and continuing System Personnel Training programs.

This standard is needed to help insure that system personnel throughout the industry are provided with an adequate amount of training in order to promote the reliability and adequacy of the North American Interconnections and their bulk electrical systems.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies by double clicking the grey boxes.)*		
☒	Reliability Authority	Ensures the reliability of the bulk transmission system within its Reliability Authority area. This is the highest reliability authority.
☒	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within its metered boundary and supports system frequency in real time
☒	Interchange Authority	Authorizes valid and balanced Interchange Schedules
☒	Planning Authority	Plans the bulk electric system
☐	Resource Planner	Develops a long-term (>1year) plan for the resource adequacy of specific loads within a Planning Authority area.
☐	Transmission Planner	Develops a long-term (>1 year) plan for the reliability of transmission systems within its portion of the Planning Authority area.
☒	Transmission Service Provider	Provides transmission services to qualified market participants under applicable transmission service agreements
☐	Transmission Owner	Owns transmission facilities
☒	Transmission Operator	Operates and maintains the transmission facilities, and executes switching orders
☐	Distribution Provider	Provides and operates the “wires” between the transmission system and the customer
☐	Generator Owner	Owns and maintains generation unit(s)
☒	Generator Operator	Operates generation unit(s) and performs the functions of supplying energy and Interconnected Operations Services
☒	Purchasing-Selling Entity	The function of purchasing or selling energy, capacity and all necessary Interconnected Operations Services as required
☒	Market Operator	Integrates energy, capacity, balancing, and transmission resources to achieve an economic, reliability-constrained dispatch.
☒	Load-Serving Entity	Secures energy and transmission (and related generation services) to serve the end user

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check boxes for all that apply by double clicking the grey boxes.)*	
☒	1. Interconnected bulk electric systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☒	2. The frequency and voltage of interconnected bulk electric systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☒	3. Information necessary for the planning and operation of interconnected bulk electric systems shall be made available to those entities responsible for planning and operating the systems reliably.
☒	4. Plans for emergency operation and system restoration of interconnected bulk electric systems shall be developed, coordinated, maintained and implemented.
☒	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk electric systems.
☒	6. Personnel responsible for planning and operating interconnected bulk electric systems shall be trained, qualified and have the responsibility and authority to implement actions.
☒	7. The security of the interconnected bulk electric systems shall be assessed, monitored and maintained on a wide area basis.

Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box by double clicking the grey area.)*
1. The planning and operation of bulk electric systems shall recognize that reliability is an essential requirement of a robust North American economy. Yes
2. An Organization Standard shall not give any market participant an unfair competitive advantage.Yes
3. An Organization Standard shall neither mandate nor prohibit any specific market structure. Yes
4. An Organization Standard shall not preclude market solutions to achieving compliance with that Standard. Yes
5. An Organization Standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes

Detailed Description (Provide enough detail so that an independent entity familiar with the industry could draft, modify, or withdraw a Standard based on this description.)

Requirements shall be established for the development, implementation, and maintenance of system personnel training programs. The goal would be to promote the reliability of the Interconnections through the setting of appropriate minimum training requirements for system personnel. The standard would be designed to promote quality-training programs for the initial and continuing education of system personnel. The Standard shall include essential elements of a training program, required minimum number of hours, topics of study, and training program requirements. This standard should, as a minimum, include the following:

1. Elements of a training program
    a. Objectives
        i. Competency-based
    b. Needs assessments
        i. Job task analysis
    c. Training plan
    d. Schedule
    e. Delivery methods
    f. Program design
    g. Progress (learning) assessment
    h. Program evaluation
    i. Administration
        i. Learning management system
        ii. Documentation
        iii. Record retention
2. Initial training requirements (topics and hours)
    a. Entry level positions
    b. Assessment guides
    c. Certification preparation
    d. On-the-job training
3. Continuous training requirements (topics and hours)
    a. Annual training requirements
        i. Number of hours that system personnel must commit to annual training
        ii. Topics
        iii. Methods
    b. Progression training
    c. Cross training
    d. Job related (OJT)
    e. Refresher training
    f. Emergency training
    g. Advanced system operations training
    h. Situational awareness training
    i. Team training
    j. System awareness
        i. Local area
        ii. Adjacent system
        iii. Wide-area
4. Simulation training
    a. Initial and continuous requirements

b. Operator Training Simulators (DTS, OTS)
c. Drills and table top exercises

5. Identify target audiences
    a. System personnel that impact system reliability
        i. Includes all functional authorities identified in the NERC Functional Model, management and supervision and other support staff
6. Staffing level adequacy needed to improve the quality and quantity of training
    a. Operating personnel (System personnel that impact system reliability)
    b. Training personnel
7. Training resources and staff
    a. Facilities
    b. Tools
    c. Materials
    d. Instructor qualifications
        i. Instructors must be individuals competent in both knowledge of the subject and instructional capabilities
    e. Instructor training requirements
    f. Funding
8. Program accreditation standards (Initial and continuous)
    a. Adheres to the NERC Continuing Education program criteria
    b. Approval and revocation processes
9. Compliance to training standards
    a. Templates

Related Standards

Standard No.	Explanation
PER-002-0 (031)	If Version 0 standards are adopted, proposed standard PER-002-0 (031) on Operating Personnel Training would be entirely replaced.

Related SARs

SAR ID	Explanation
BA_CERTIFICATION_01_03	Certification of the Balancing Authority function includes requirements for staffing with NERC-certified system operators. The proposed standard should set a required minimum training program for these certified system operators.
IA_CERTIFICATION_01_02	Certification of the Interchange Authority function includes requirements for staffing with NERC-certified system operators. The proposed standard should set a required minimum training program for these certified system operators.
RA_CERTIFICATION_01_02	Certification of the Reliability Authority function includes requirements for staffing with NERC-certified system operators. The proposed standard should set a required minimum training program for these certified system operators.
TOP_CERTIFICATION_01_02	Certification of the transmission Operator Authority function includes requirements for staffing with NERC-certified system

	operators. The proposed standard should set a required minimum training program for these certified system operators.

Regional Differences

Region	Explanation
ECAR	
ERCOT	
FRCC	
MAAC	
MAIN	
MAPP	
NPCC	
SERC	
SPP	
WECC	

Related NERC Operating Policies or Planning Standards

ID	Explanation
Policy 8B - Training	Policy 8B – Training – requires that all operating authority shall provide its system operators with a coordinated training program that is designed to promote reliable operation. The purpose of the proposed standard is to define what would constitute a coordinated training program, and what types of training would be required. The proposed standards should include a requirement for the amount of training required on an annual basis, the core curriculum of the training that should be provided, and the standards for the design, development and delivery of the training (criteria from the NERC Continuing Education Program). System operators should include Reliability coordinators, control area operators and transmission operators. In addition, the proposed standard should include training for operator support staff, as outlined in Recommendation 19 of the Joint US-Canada Power System Outage Task Force report on the August 14, 2003 Blackout. Operating Policy 8B would be retired by the adoption of this proposed Standard on System Personnel Training, if it has not already been retired with the adoption of Version 0 standards.
Appendix 8B1	Appendix 8B1 – Suggested Items for System Operator Training Courses – is an outline of suggested items that should be included in a training program for system operators. While this listing is extensive, the proposed standard should address

	a core curriculum of training that would be required for 1) entry level system operators, 2) system operators who work under the authority of control area operators and reliability coordinators and 3) senior system operators. Appendix 8B1 would be retired by the adoption of this proposed Standard on System Personnel Training, if it has not already been retired with the adoption of Version 0 standards.
P8T3	Compliance template on Operating Personnel Training would be entirely replaced, unless it has already been retired by adoption of Version 0 standards.

System Personnel Training Standard Drafting Team

Project Plan

- *Standards Process manager needs to send a survey to every entity in the Registered Ballot Body to develop a ballot pool*

April 15, 2005 – Alexandra, VA - Complete

PS/Standards Drafting Team meeting

- Chair will open a discuss on the development process and action plan to complete work on drafting an industry standard for training
- Chair appoint drafting team members, including a team lead, to work in three teams that will be responsible for drafting various portions of the training standards as follows:
  - Team 1 – **John Taylor, Ray Gross, Geoff Elmer and Rick King**
    - Draft the process portion of the training standard that outlines the process that organizations will use to determine their individual training program needs
    - Supplement the draft with supporting references
  - Team 2 – **Donnie Harrell, Sanjay Dutta, Brent Hebert, James Bradley and (David Folk)**
    - Draft the prescriptive portion of the training standard that outlines the minimum training requirements for various organizations based on the NERC Functional Model
    - The prescriptive portion of the training standard will also include methods of evaluation of training that are consistent with other training models and NERC standards
    - Supplement the draft with supporting references
  - Team 3 – **Earl Cass, Kent Grammer, Mike Wells, Larry Alderink, and (Don Boyer)**
    - Draft a description of the compliance monitoring process and levels of compliance including sanctions
    - Supplement the draft with supporting references, and compliance templates

This item has been completed. Drafting team has divided into three subgroups to work on the development of the training standard.

April – May 2005

The three teams will continue to refine their deliverables using email and/or Webex meetings. John Theotonio will coordinate with these teams to set up the necessary conference calls and Webex meetings.

May 22, 2005

FERC to finalize its system operator training study Phase 1 interim report

System Personnel Training Standard Drafting Team

Project Plan

June 6, 2005

The three teams will work to finalize their drafts. As the drafts are completed, the team leads will forward the documents to John Theotonio who will combine the drafts into a composite documents. John will forward the composite draft to all the drafting team members for their review prior to the regular June 14-16, 2005 meeting.

The drafting team will review (if made available to NERC) FERC's Phase 1 interim report to include any findings into the training standard.

June 14-16, 2005

PS/Standards Drafting Team meeting

- The drafting team will review the composite draft standard to address issues that arise. As needed, the three teams will meet separately during this meeting to modify their portion of the draft standard. Once each team reconciles its issues, the complete drafting team will review the standard to finalize any required changes.

July 8, 2005

John Theotonio will incorporate all changes into the composite standard and ready the document for review. John will email this document to the drafting team who will review the document by July 20, 2005

July 28, 2005 – via conference call and Webex meeting

The drafting team will review data from the NERC System Operator Training Program study and the FERC Training Program survey to determine additional areas that must be incorporated into the training standard. This should be done as soon as data from these two studies is available. Drafting team may need to schedule a meeting, conference call or Webex meeting to incorporate material from these studies into the training standard.

August 15, 2005

The drafting team will review the draft of the training standard. The drafting team will work on preparing the standard for public posting for industry comments.

August 14, 2005

FERC to finalize its system operator training study Phase 2 interim report

August 23-25, 2005

PS/Standards Drafting Team meeting

The drafting team will finalize the training standard for submittal to the NERC Reliability Standards director for its initial public posting for comments.

- Public posting will be either 30 or 45 days, as determined by NERC Reliability Standards director, and the Standards Authorization Committee (SAC)
- NERC will compile public comments for the drafting team to review and respond
- First public posting may occur no later than September 2005

- Team 3 should liaison with the CCC to determine if compliance measures are adequate and if any field testing is required

The drafting team will review (if made available to NERC) FERC's Phase 2 interim report to include any findings into the training standard.

September 4, 2005
FERC to finalize its system operator training study Phase 3 interim report

October 16, 2005
FERC to prepare and submit its system operator training study final report

October 18-20, 2005
PS/Standards Drafting Team meeting

- Drafting team to meet to respond to public comments and modify the training standard as needed (changes should be done in red-line version to show changes
- Drafting team will prepare the training standard for a second public posting
- Post the standard for a second round of comments

The drafting team will review (if made available to NERC) FERC's final report and recommendations to include any findings into the training standard.

November 21, 2005 – via conference call and Webex meeting

- Drafting team will review comments received on the second posting of the training standard, and incorporate any changes that are required
- Drafting team will prepare a final draft of the training standard and determine of the standard is ready for balloting

December 13-15, 2005
PS and Drafting Team meeting
The drafting team will meet to finalize the standard for balloting

- Drafting team will submit the draft training standard to NERC and request SAC to post the standard for balloting
- Balloting should occur no later than December 2005
- Drafting team may be required to address comments received during balloting, and prepare the training standard for a second balloting
- Completed standard, if approved during balloting, will be sent to the NERC Board of Trustees for adoption by (need day here)

January 2006 (need to finalize deadline)
Based on the results of balloting, the drafting team may need to meet again to review any comments received during balloting and prepare the standard for a final balloting.

COMMENT FORM
Proposed System Personnel Training Standard

This form is to be used to submit comments on the proposed System Personnel Training Standard Authorization Request. Comments must be submitted by **January 07, 2005**. You may submit the completed form by emailing it to: sarcomm@nerc.com with the words "System Personnel Training SAR Comments" in the subject line. If you have questions please contact Mark Ladrow at mark.ladrow@nerc.net on 609-452-8060.

ALL DATA ON THIS FORM WILL BE TRANSFERRED AUTOMATICALLY TO A DATABASE.

DO: **Do** enter text only, with no formatting or styles added.
Do use punctuation and capitalization as needed (except quotations).
Do use more than one form if responses do not fit in the spaces provided.
Do submit any formatted text or markups in a separate WORD file.

DO NOT: **Do not** insert tabs or paragraph returns in any data field.
Do not use numbering or bullets in any data field.
Do not use quotation marks in any data field.
Do not submit a response in an unprotected copy of this form.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Thomas J Bradish	
Organization:	Reliant Energy	
Telephone:	724-597-8593	
Email:	tbradish@reliant.com	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☒ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☒	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

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Background Information:

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The requestor would like to gauge the level of consensus regarding the scope of this SAR and to obtain the input of the industry prior to determining the final scope and requirements of the SAR. Accordingly, your comments included on this form, emailed with the subject "System Personnel Training SAR Comments" by January 07, 2005, would be appreciated.

Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

If we do not develop a focused training standard we are destined to repeat August 14.

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
Interchange Authority	☒ Yes ☐ No
Planning Authority	☒ Yes ☐ No
Resource Planner	☒ Yes ☐ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Planner	☒ Yes ☐ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Owner	☒ Yes ☐ No
Transmission Operator	☒ Yes ☐ No
Distribution Provider	☒ Yes ☐ No
Generator Owner	☒ Yes ☐ No
Generator Operator	☒ Yes ☐ No
Purchasing-Selling Entity	☒ Yes ☐ No
Market Operator	☒ Yes ☐ No
Load-Serving Entity	☒ Yes ☐ No

Comments

I have checked all of the above because all will need to have some level of knowledge around the operation of the grid. The key phrase is "some level of knowledge'. A one size fits all approach would be over kill and doomed to failure. The training requirements should fit the knowledge requirement of the position.

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☐ Yes

☒ No

If yes, please explain.

Are there existing elements that should be excluded in this proposal?

☐ Yes

☒ No

If yes, please explain.

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Comments

I believe that regional differences should be handled in the content and design of the enitities training program.

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

My guess is that it will increase our staffing requirement in order to send dispatchers to training. It will certainly mean additional record keeping.

Comments

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Can this reporting be handled similar to the CEU tracking for NERC certification? It will have to be tracked annually since most of the requirements will be annual requirements.

Comments

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments
None

COMMENT FORM
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Do not submit a response in an unprotected copy of this form.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Karl A Bryan	
Organization:	US Army Corps of Engineers	
Telephone:	503-808-3894	
Email:	karl.a.bryan@usace.army.mil	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
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Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

I don't think you are going far enough with the requirement for training. I am constantly amazed at how generation operators do not understand where they fit into the big picture as far as system reliability issues are concerned. Even the little task of voltage support is poorly understood by our operators.

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
Interchange Authority	☒ Yes ☐ No
Planning Authority	☒ Yes ☐ No
Resource Planner	☒ Yes ☐ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Planner	☒ Yes ☐ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Owner	☐ Yes ☐ No
Transmission Operator	☒ Yes ☐ No
Distribution Provider	☒ Yes ☐ No
Generator Owner	☐ Yes ☐ No
Generator Operator	☒ Yes ☐ No
Purchasing-Selling Entity	☐ Yes ☐ No
Market Operator	☒ Yes ☐ No
Load-Serving Entity	☒ Yes ☐ No

Comments

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☒ Yes

☐ No

If yes, please explain.

I feel that various levels of certification should be developed, similar to engineer in training to registered professional engineer.

Are there existing elements that should be excluded in this proposal?

☐ Yes

☐ No

If yes, please explain.

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Comments

In order for national certification to mean anything, there should be no region specific differences for earning certification.

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

It takes manpower off of the workbench in order to go through a certification training process. I would suspect that there will be some staff that require more remedial training than others. With the present shortage of staff at most facilities, it will be dificult to accomplish all of the required training in a timely manner without increasing staffing.

Comments

Question 6: How and how often should training programs be reviewed for compliance with the standard?

The training programs should be accredited in the same manner and frequency as utilized in higher education. Nationally recognized auditting and once every 4 or 5 year recertification.

Comments

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	John Neagle	
Organization:	Associated Electric Cooperative Inc.	
Telephone:	(417) 885-9233	
Email:	jneagle@aeci.org	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☒ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☒	1 - Transmission Owners
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Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

Associated Electric Cooperative Inc. agrees with the general concept of a training standard for the purpose of promoting reliability. The SAR does not contain sufficient detail to determine whether or not Associated would agree with a standard based on this SAR.

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
Interchange Authority	☒ Yes ☐ No
Planning Authority	☐ Yes ☒ No
Resource Planner	☐ Yes ☒ No
Transmission Service Provider	☐ Yes ☒ No
Transmission Planner	☐ Yes ☒ No
Transmission Service Provider	☐ Yes ☒ No
Transmission Owner	☐ Yes ☒ No
Transmission Operator	☐ Yes ☒ No
Distribution Provider	☐ Yes ☒ No
Generator Owner	☐ Yes ☒ No
Generator Operator	☐ Yes ☒ No
Purchasing-Selling Entity	☐ Yes ☒ No
Market Operator	☐ Yes ☒ No
Load-Serving Entity	☐ Yes ☒ No

Comments

Associated Electric Cooperative Inc. suggests it is inappropriate and unnecessary for a training standard resulting from this SAR to apply to electric utility industry individuals other than those directly responsible for the operation of the interconnected system, i.e. control center personnel.

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☐ Yes

☒ No

If yes, please explain.

Are there existing elements that should be excluded in this proposal?

☒ Yes

☐ No

If yes, please explain.

Associated Electric Cooperative Inc. suggests a training standard should address the desired outcomes and should not specify the methods to achieve those outcomes. The SAR does not contain sufficient detail to determine the SAR drafting team's intent, but it appears the resulting standard would be quite prescriptive in many areas. Any elements currently included in the SAR that prescribe facilities, tools, materials, funding, staffing levels, methods, etc. should be deleted. These details are best determined by and should be left to the descretion of the individual company.

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Comments

Given the limited detail in the SAR, Associated Electric Cooperative Inc. does not see a need for regional differences.

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

Associated Electric Cooperative Inc. responds to this question with a qualified no. As stated above, the SAR does not contain sufficient detail to positively determine required staffing.

Comments

If the standard developed from this SAR is applicable to all the entities indicated on Page SAR-2, a 15 - 20% staff increase in affected areas could conceivably be necesssary for Associated Electric Cooperative Inc. to comply. It is unlikely Associated's customers would appreciate or understand rate increases to fund such a training program that would do nothing to decrease the number of blackouts they have experienced (0).

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Associated Electric Cooperative Inc. suggests an annual self-certification to the appropriate Regional Reliability Council.

Comments

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments
Associated Electric Cooperative Inc. reiterates its comments above that a training standard should address the desired outcomes and should not detail the methods to achieve those outcomes. Prescriptive requirements for facilities, tools, materials, funding, staffing levels, methods, etc. should not be included. These details are best determined by and should be left to the descretion of the individual company.
Associated Electric Cooperative Inc. respectfully requests the Standards Drafting Team fully and carefully consider the industry's comments submitted in response to publication of the System Operator Certification Program Administrative Guidelines. Special attention should be given to the comments regarding the number of training hours (CEH) required.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Howard F. Rulf	
Organization:	We Energies	
Telephone:	262-574-6046	
Email:	Howard.Rulf@we-energies.com	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☒ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
Interchange Authority	☒ Yes ☐ No
Planning Authority	☒ Yes ☐ No
Resource Planner	☐ Yes ☒ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Planner	☐ Yes ☒ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Owner	☐ Yes ☒ No
Transmission Operator	☒ Yes ☐ No
Distribution Provider	☐ Yes ☒ No
Generator Owner	☐ Yes ☒ No
Generator Operator	☒ Yes ☐ No
Purchasing-Selling Entity	☒ Yes ☐ No
Market Operator	☒ Yes ☐ No
Load-Serving Entity	☒ Yes ☐ No

Comments

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☐ Yes

☒ No

If yes, please explain.

Are there existing elements that should be excluded in this proposal?

☐ Yes

☒ No

If yes, please explain.

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Comments

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☒ Yes

☐ No

If no, please explain what staffing changes might be needed.

Comments

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Every three years.

Comments

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments
All training should not be required to be in the NERC CEH program.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	James Stanton	
Organization:	Calpine Midwest Power	
Telephone:	832-476-4453	
Email:	jstanton@calpine.com	
NERC Region		**Registered Ballot Body Segment**
☒ **ERCOT** ☒ **ECAR** ☒ **FRCC** ☒ **MAAC** ☒ **MAIN** ☒ **MAPP** ☒ **NPCC** ☒ **SERC** ☒ **SPP** ☒ **WECC** ☐ **NA - Not Applicable**	☐	1 - Transmission Owners
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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

I believe there is a reliability need for a training standard, though not necessarily the one being proposed.

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☐ Yes ☒ No
Balancing Authority	☐ Yes ☒ No
Interchange Authority	☐ Yes ☒ No
Planning Authority	☐ Yes ☒ No
Resource Planner	☐ Yes ☒ No
Transmission Service Provider	☐ Yes ☒ No
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Generator Owner	☐ Yes ☒ No
Generator Operator	☐ Yes ☒ No
Purchasing-Selling Entity	☐ Yes ☒ No
Market Operator	☐ Yes ☒ No
Load-Serving Entity	☐ Yes ☒ No

Comments

The proposed Standard is overly broad and ambiguous, and should not uniformly apply to anyone.

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☐ Yes

☒ No

If yes, please explain.

The content is inadequate not because of a lack of elements but because of the ambiguity of what it is intended to do. A Training Standard cannot be a "one size fits all" approach for functions as disparate as Relaibility Authorities and Purchasing and Selling entities.

Are there existing elements that should be excluded in this proposal?

☐ Yes

☐ No

If yes, please explain.

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☒ Yes

☐ No

If yes, please list the region-specific differences.

ERCOT's system, for example, does not easily fit into the NERC proposed functional model and the training standard should recognize the unique regional differences found in the ERCOT Region.

Comments

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☒ Yes

☐ No

If no, please explain what staffing changes might be needed.

It might be doable if as many control areas as possible were consolidated, which would mean fewer people to train. If existing control areas continue to exist in their current number, then no, a training standard could not be implemented at current staffing levels.

Comments

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Comments

The training program should be reviewed often enough to insure it remains aligned with current markets /regional design and adjust, if needed, to capture future market and reliabilty training needs.

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments
The statement, Any person with access to a control room should be trained, from the blackout report, should be clarified. What kind of control room? Is this a control area? An RTO control room? A power plant control room?
Also, there are essential pieces missing from the proposal, such as what are the goals of the training program? It is quite exhaustive in the elements of a training program but fails to explain what objectives are to be met. Beyond the broad goal of promoting the reliability of the Interconnections, what subject matter is envisioned to fall into the recommended elements that would be applicable to all the Reliability Functions to which it is intended to apply? A good example is simulator training. Simulator training on what?
The current proposal is so overly broad as to be unworkable. More explantion of the goals of the training program and the applicability to the Reliability Functions must be presented.
This is too important a subject to apply the broad brush of a one-size-fits-all Training Standard.

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Telephone:		
Email:		
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☒ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☒	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☐	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: CP9

Lead Contact: **Guy Zito**

Contact Organization: **Northeast Power Coordination Council**

Contact Segment: **2**

Contact Telephone: **212-840-1070**

Contact Email: **gzito@npcc.org**

Additional Member Name	Additional Member Organization	Region*	Segment*
Kathleen Goodman	ISO-New England	NPCC	2
Ralph Rufrano	New York Power Authority	NPCC	1
Greg Campoli	NYISO	NPCC	2
Pete Lebro	National Grid US	NPCC	1
Roger Champagne	TransEnergie, Quebec	NPCC	1
Khaqan Khan	IESO, Ontario	NPCC	2
Al Adamsom	New York State Reliability Coun.	NPCC	2
David Kiguel	Hydro One	NPCC	1
Robert Pelligrini	United Illuminating	NPCC	1
David Little	Nova Scotia Power	NPCC	1
Brian Hogue	NPCC	NPCC	2
Jerry Mosier	NPCC	NPCC	2
Guy Zito	NPCC	NPCC	2

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Background Information:

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The requestor would like to gauge the level of consensus regarding the scope of this SAR and to obtain the input of the industry prior to determining the final scope and requirements of the SAR. Accordingly, your comments included on this form, emailed with the subject "System Personnel Training SAR Comments" by January 07, 2005, would be appreciated.

Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

There needs to be flexibility to tailor the training to the individual involved.

Requirements should be limited to Certification Standards. NERC is being overly descriptive of "how to" conduct training rather than achieving specific results. NERC Standards should be "object oriented", that is, specify what the final requirements are. Prescribing how each entity goes about to achieve these objectives is beyond NERC's mandate.

Limit this to only Control Room Operating staff that actually "operate" the system.

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
Interchange Authority	☒ Yes ☐ No
Planning Authority	☐ Yes ☒ No
Resource Planner	☐ Yes ☒ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Planner	☐ Yes ☒ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Owner	☐ Yes ☒ No
Transmission Operator	☒ Yes ☐ No
Distribution Provider	☐ Yes ☒ No
Generator Owner	☐ Yes ☒ No
Generator Operator	☒ Yes ☐ No
Purchasing-Selling Entity	☐ Yes ☒ No
Market Operator	☐ Yes ☒ No
Load-Serving Entity	☐ Yes ☒ No

Comments

NPCC believes that anyone engaged in direct operating/control activity for the Bulk Power System should be properly qualified/certified.

An alternative approach to the above also discussed might also involve only requiring NERC Certifiable Functions..i.e. Reliability Authority(RC), Balancing Authority, Interchange Authority, Transmission Operator to adhere to the resultant standard.

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☐ Yes

☒ No

If yes, please explain.

Are there existing elements that should be excluded in this proposal?

☒ Yes

☐ No

If yes, please explain.

Certification is a control room operator issue.

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Comments

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

Administrative duties related to audit. Additional Operating Room personnel due to out of control room activities.

Comments

Question 6: How and how often should training programs be reviewed for compliance with the standard?

NPCC believes the training programs should be reviewed internally and self certified for compliance as required or at least yearly, with audits being conducted at least once every three years.

Comments

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Ken Goldsmith	
Organization:	Alliant Energy	
Telephone:	319-786-4167	
Email:	kengoldsmith@alliantenergy.com	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☒ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☒	1 - Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

* If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
Interchange Authority	☒ Yes ☐ No
Planning Authority	☐ Yes ☒ No
Resource Planner	☐ Yes ☒ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Planner	☐ Yes ☒ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Owner	☐ Yes ☒ No
Transmission Operator	☒ Yes ☐ No
Distribution Provider	☐ Yes ☒ No
Generator Owner	☐ Yes ☒ No
Generator Operator	☐ Yes ☒ No
Purchasing-Selling Entity	☐ Yes ☒ No
Market Operator	☐ Yes ☒ No
Load-Serving Entity	☐ Yes ☒ No

Comments

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☐ Yes

☒ No

If yes, please explain.

Are there existing elements that should be excluded in this proposal?

☐ Yes

☒ No

If yes, please explain.

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Comments

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

I believe it will require more personnel dedicated for the training function alone, which may be difficult for the smaller organizations.

Comments

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Comments

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments
Somewhere the standard should encourage/recommend that the Regions should form Training Groups to promote uniform training throughout the regions. This will help promote a better understanding of operations, by all the parties.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Anthony M. Giasi	
Organization:	Consolidated Edison Co. of NY, System Operation Department	
Telephone:	212-580-6772	
Email:	giasia@coned.com	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☒ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

However, the training standard must be reasonable and explicit, it must be specific as to which personnel in each entity require training, it must be specific as to the different training protocols not only for the personnel within each entity, but also for the different entities, it must be achievable in a reasonable time frame for a reasonable cost, and not subject to compliance for a reasonable period of time, say three years to allow for formation and implementation.

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
Interchange Authority	☒ Yes ☐ No
Planning Authority	☒ Yes ☐ No
Resource Planner	☒ Yes ☐ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Planner	☒ Yes ☐ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Owner	☒ Yes ☐ No
Transmission Operator	☒ Yes ☐ No
Distribution Provider	☐ Yes ☐ No
Generator Owner	☒ Yes ☐ No
Generator Operator	☒ Yes ☐ No
Purchasing-Selling Entity	☒ Yes ☐ No
Market Operator	☒ Yes ☐ No
Load-Serving Entity	☒ Yes ☐ No

Comments

Do the proposed training standards apply to non-registered entities to whom actions or operations are delegated by a registered entity? If yes, why. If not, then do any training standards apply?

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☒ Yes

☐ No

If yes, please explain.

Qualification testing; Real-time assessments to verify training carried over to the job; Missing the link to competency of existing system operators; Needs to identify the qualifications for the system operator to first sit in the chair; Needs to address resources needed to accomplish the training;Need a training shift for system operators (adequate time dedicated to training)

Are there existing elements that should be excluded in this proposal?

☒ Yes

☐ No

If yes, please explain.

Companies should have plans in place to take a system operator from an intial competency level up to an expert level, however this is not NERC’s responsibility.

Comments

What is written is ‘process-oriented’ and is not sufficient in detail for all system personnel positions – the scope is too broad (covering too many positions) and the level is too high level (doesn't identify what positions are included in the category called 'system personnel')– a SAR targeted for the individual types of positions (such as a SAR just for the operating authority positions) would be more helpful.

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Comments

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

A reasonable standard is needed, however, additional training personnel, training infrastructure, training documentation, training funding, etc would be required to train all "system personnel" as indicated in the SAR.

Comments

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Bi-annual basis.

Comments

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments
Match the definitions on the SAR with the definitions in the Glossary posted with Version 0. The standard needs to be written so the rules are objective, clear and well-understood by all end-users as well as auditors; Need to define what is meant by 'system personnel'; Need to define terms used such as 'job task analysis' and 'competency-based'.

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Do not submit a response in an unprotected copy of this form.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Kathleen Davis	
Organization:	Tennessee Valley Authority	
Telephone:	751-6172	
Email:	kadavis@tva.gov	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☒ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☒	1 - Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

Group Name: Electric System Operations

Lead Contact: **Kathy Davis**

Contact Organization: **Compliance & Standards**

Contact Segment: **1**

Contact Telephone: **423-751-6172**

Contact Email: **kadavis@tva.gov**

Additional Member Name	Additional Member Organization	Region*	Segment*
Jeff Newsome	**TVA, Electric System Ops**	**SERC**	**1**
Rick King	**TVAEmployee Technical Training**	**SERC**	**1**

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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

A training standard is needed to ensure we have competent personnel who can safely and reliably operate, maintain, and improve the performance of the electric power system.

Training for the system operators is critical to the industry as a whole. We are at the beginning stages of where we must go in the future to reassure ourselves and the public at large that the events of August 14th 2003 will not be repeated. For the NERC organization this should be at a minimum, in it's top three priorities..

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
Interchange Authority	☒ Yes ☐ No
Planning Authority	☒ Yes ☐ No
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Transmission Owner	☐ Yes ☐ No
Transmission Operator	☒ Yes ☐ No
Distribution Provider	☐ Yes ☐ No
Generator Owner	☐ Yes ☐ No
Generator Operator	☐ Yes ☐ No
Purchasing-Selling Entity	☐ Yes ☐ No
Market Operator	☐ Yes ☐ No
Load-Serving Entity	☐ Yes ☐ No

Comments

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☒ Yes

☐ No

If yes, please explain.

One basic tenet or requirement that should be stated is the use of a systematic approach (SAT), based on job performance requirements, to guide the training of system personnel.

Are there existing elements that should be excluded in this proposal?

☒ Yes

☐ No

If yes, please explain.

You should not specify job and task analysis under 1.b. A needs assessment can be satisfied in several ways from a simple needs or job analysis up to a full blown job and task analysis.

There should only be a requirement for documentation and record keeping under 1.i. Administration. A learning management system is one means to document and track training.

If hours are specified under initial training requirements they should reflect only the minimum acceptable number of hours for training. If a company does a needs analysis to determine job requirements the time to conduct the initial training program will vary based on the components of the job and the necessary elements to be trained on.

Progression training and cross training are not consistent with the intent of a continuing training program. A continuing training program is intended to refresh and improve the application of knowledge and job-related skills for the job the trainee works or is qualified to work.

Simulation training is a platform or method to provide initial and continuing training. I don't feel that it should be addressed separately.

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☒ Yes

☐ No

If yes, please list the region-specific differences.

From an overall framework the standard should be the same however we must recognize the special needs and the special circumstance of individual regions. One size does not always fit all.

Comments

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

When you consider the additional training requirements that will probably come out of the standard I foresee a need for additional staffing in both the system personnel side of the business and on the training side of the business.

We need an industry standard for staffing levels that applies across the board for the functional responsibility.

Comments

It would be prudent to develop a training standard that stipulates the minimum requirements to satisfy training for system personnel, versus taking the approach to identify the best approach. This will minimize the impact on the staffing levels for both training and staff personnel.

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Every 4 years

Comments
A mandatory compliance type review should be conducted every 4 years. This approach is consistent with similar utility training requirements. Each utiltity/entity should conduct self-assessments on a more frequent time frame. This approach will minimize the impact on NERC and the industry when trying to audit training for compliance.

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Gerald Rheault	
Organization:	Manitoba Hydro	
Telephone:	204-487-5423	
Email:	gnrheault@hydro.mb.ca	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☒ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☒	1 - Transmission Owners
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Lead Contact:

Contact Organization:

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☒ Yes

☐ No

Comments

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Distribution Provider	☒ Yes ☐ No
Generator Owner	☐ Yes ☒ No
Generator Operator	☒ Yes ☐ No
Purchasing-Selling Entity	☐ Yes ☒ No
Market Operator	☐ Yes ☒ No
Load-Serving Entity	☒ Yes ☐ No

Comments

For the Generator Operator category, Manitoba Hydro believes that this Standard should apply for a generator operator at the generation company operations or dispatch center but not to an operator at the thermal or hydraulic plant.

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☐ Yes

☒ No

If yes, please explain.

Are there existing elements that should be excluded in this proposal?

☐ Yes

☒ No

If yes, please explain.

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Comments

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

Manitoba Hydro foresees requiring at least 2 additional staff; one administrative representative to help maintain the documentation and for record keeping and at least one instructional designer to create/revise the training courses. This is an estimate only and is based on a control centre perspective only. The total impact on Manitoba Hydro may be more extensive depending on the finalized training requirements and what options exist to develop and target the requisite training

Comments

Program planning and training development is both time and staff intensive. Manitoba Hydro currently has difficulty maintaining its trainee program and ongoing staff training with the existing staff. Additional staff will be required to implement any new requirements to the existing training program.

Question 6: How and how often should training programs be reviewed for compliance with the standard?

every three years.

Comments
Each entity training program should be reviewed as part of the entity operational audit which is presently part of the NERC Compliance program. In the MAPP /MRO region this presently occurs every three years. Any program which was judged satisfactory at the last operational audit should not deteriorate to such a degree that the system is a threat to reliability in any three year window.

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments

COMMENT FORM
Proposed System Personnel Training Standard

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
Email:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **ECAR** ☐ **FRCC** ☐ **MAAC** ☐ **MAIN** ☐ **MAPP** ☐ **NPCC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA - Not Applicable**	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	1 - Transmission Owners 2 - RTOs, ISOs, Regional Reliability Councils 3 - Load-serving Entities 4 - Transmission-dependent Utilities 5 - Electric Generators 6 - Electricity Brokers, Aggregators, and Marketers 7 - Large Electricity End Users 8 - Small Electricity End Users 9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Pepco Holdings, Inc. - Affiliates

Lead Contact: **Richard Kafka**

Contact Organization: **Potomac Electric Power Company**

Contact Segment: **3**

Contact Telephone: **(301) 469-5274**

Contact Email: **rjkafka@pepco.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Michael Maher	**Conectiv Power Delivery**	**MAAC**	**1**
William Mitchell	**Conectiv Power Delivery**	**MAAC**	**1**
David Thorne	**Potomac Electric Power Co.**	**MAAC**	**1**
Vic Davis	**Conectiv Power Delivery**	**MAAC**	**1**
Val Hildebrand	**Potomac Electric Power Co**	**MAAC**	**1**

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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☐ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
Interchange Authority	☒ Yes ☐ No
Planning Authority	☒ Yes ☐ No
Resource Planner	☐ Yes ☒ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Planner	☐ Yes ☒ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Owner	☐ Yes ☒ No
Transmission Operator	☒ Yes ☐ No
Distribution Provider	☐ Yes ☒ No
Generator Owner	☐ Yes ☒ No
Generator Operator	☒ Yes ☐ No
Purchasing-Selling Entity	☒ Yes ☐ No
Market Operator	☒ Yes ☐ No
Load-Serving Entity	☒ Yes ☐ No

Comments

Those entities operating in real time should have training requirements.

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☒ Yes

☐ No

If yes, please explain.

Are there existing elements that should be excluded in this proposal?

☒ Yes

☐ No

If yes, please explain.

Under Item 1, i. Administration, a Learning Management System is a "how" rather than a "what" and should be eliminated. Item 3, Continuous training requiremnts, is poorly defined. It mixes topics, categories and methods of training, and many are subsets of others. The list is not propely defined or organized. Item 4, Simulation training: Should identify types, but not prescribe any specific method of simulation or simulator. Item 7, Training resources and staff, f. Funding: funding should not be part of the standard.

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Comments

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

At a minimum, we would need additional training personnel. It is also possible that training requirements would be so great as to require additional operating personnel.

Comments

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Self report via comprehensive questionnaire annually or every two years. Training audit team visit every 5 years.

Comments

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Peter Henderson	
Organization:	IESO	
Telephone:	905 855 6258	
Email:	peter.henderson@ieso.ca	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
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	☐	8 - Small Electricity End Users
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

There is a need for a training standard and we applaud the intent. Such a standard should be the place for all training requirements (presently, training requirements are found in several locations), for the appropriate functions. However, the proposed standard appears to apply a "one size fits all" approach to every authority and function. If this is the case, then this approach is likely to be unrealistic. It should be clear as to which functions should be certified versus having taken accredited courses. Also, clarity is needed that there will be different types of certification, rather than just NERC Operator Certification.

NERC needs to better define the Scope of this standard. Is the intent of the standard to measure compliance of the the training of (reliability entity) personnel regarding NERC Reliability Standards, or is the standard meant to measure compliance of all Training Programs? If the intent is the former, then the question would be ,is there enough material to really test ?, since some of the NERC standards applying to owners for example only require communications of data. If the intent is the latter, then the question would be ,is NERC the right organization to evaluate in-house training programs?, given the diversity of operating approaches used in North America. In this case, some programs are probably better evaluated by those closer to the needs and responsibilities of the individual organization.

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
Interchange Authority	☒ Yes ☐ No
Planning Authority	☐ Yes ☒ No
Resource Planner	☐ Yes ☒ No
Transmission Service Provider	☐ Yes ☒ No
Transmission Planner	☐ Yes ☒ No
Transmission Service Provider	☐ Yes ☒ No
Transmission Owner	☐ Yes ☒ No
Transmission Operator	☒ Yes ☐ No
Distribution Provider	☐ Yes ☒ No
Generator Owner	☐ Yes ☒ No
Generator Operator	☐ Yes ☒ No
Purchasing-Selling Entity	☐ Yes ☒ No
Market Operator	☐ Yes ☒ No
Load-Serving Entity	☐ Yes ☒ No

Comments

Where we indicated "No" above , does not imply that there should not be training. Support staff and other staff (PA, RP, TSP, GOp, etc) or operators not required to be certified should be able to meet their obligations by participating in NERC continuing education. Others (DPs, PSE, LSE, etc) may be trained on a localized basis.

TSP is listed twice. Was there supposed to be some other entity or is it a duplication?

The industry needs a little more definition and clarity on who is the functional entity (IA, RA, PA, etc.)

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☒ Yes

☒ No

If yes, please explain.

There are two conflicting questions. The training program requirements are more than adequate (and may not be necessary for some training programs).

Are there existing elements that should be excluded in this proposal?

☒ Yes

☐ No

If yes, please explain.

Again, if the approach is "one size fits all", this will cause problems. What type of emergency (or situational awareness, or simulator) training should PSE, IA or PA participate in?
On the other hand, if the intention is to have different courses/certification streamlined for each involved function, then we can understand the approach. However, not all of the functions listed in Q2 should be part of this standard. See comments on Q2.

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

.

Comments

There will be site-to-site differences. There would be some regional differences in content and topics, but there should be no regional differences in general training requirements. Some of the NERC functional definitions need more details (who is the TO, IA, RA, etc.).

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

Each organization would have different requirements. In general, there would likely be additional staff required in many of the organizations to meet this standard (to maintain the program, to coordinate training, and to provide relief for staff to participate in training, etc.) In addition, each organization, subject to this standard, would incur start-up costs associated with developing the process. A simulator requirement would add workload (setup, maintenance and running scenarios),etc. The extent of increased resourcing can not be determined until the details of the standard are available.

Comments

Question 6: How and how often should training programs be reviewed for compliance with the standard?

The training programs should be reviewed internally and self certified for compliance as required or at least yearly, with audits being conducted at least once every three years.

Comments

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments
Again, the "one-size-fits-all" approach does not appear to be justified. If an operator or authority does not need to be certified, their training requirements should be reduced. A continuing education with some focus on recommended topics (that could be tailored locally) would be more appropriate and would relieve much of the administrative burden for non-certified entities.

It might be better if this standard applies (for now) only to those entities that must be certified.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	William J. Smith	
Organization:	Allegheny Power	
Telephone:	(724) 838-6552	
Email:	wsmith1@alleghenypower.com	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT	☒	1 - Transmission Owners
☒ ECAR	☐	2 - RTOs, ISOs, Regional Reliability Councils
☐ FRCC	☐	3 - Load-serving Entities
☐ MAAC	☐	4 - Transmission-dependent Utilities
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☐ NPCC	☐	7 - Large Electricity End Users
☐ SERC	☐	8 - Small Electricity End Users
☐ SPP	☐	9 - Federal, State, Provincial Regulatory or other Government Entities
☐ WECC		
☐ NA - Not Applicable		

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

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Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
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Transmission Planner	☐ Yes ☐ No
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Transmission Owner	☐ Yes ☐ No
Transmission Operator	☒ Yes ☐ No
Distribution Provider	☐ Yes ☐ No
Generator Owner	☐ Yes ☐ No
Generator Operator	☒ Yes ☐ No
Purchasing-Selling Entity	☒ Yes ☐ No
Market Operator	☒ Yes ☐ No
Load-Serving Entity	☒ Yes ☐ No

Comments

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☐ Yes

☒ No

If yes, please explain.

Are there existing elements that should be excluded in this proposal?

☒ Yes

☐ No

If yes, please explain.

In item 3 - Continuous trianng requirements (topics and hours), parts b. Progression training and c. Cross training goes beyond training requirements. These two parts could infringe on Corporate Policy. Part i. Team training should be a desire or suggestion rather than a requirement. In item 1, part c should be excluded since it is just the physical representation of parts a and b.

Comments

Parts f, g, h, and j should be included in 3.a. as part of the Annual training requirements.

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Comments

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☐ No

If no, please explain what staffing changes might be needed.

Comments

Staffing levels can not be predicted until the requirements are specified. If this proposed standard mandates the hours required, this question can't be answered until we know the required hours.

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Comments
Training Programs should be reviewed annually by the responsible staff. Entities should be required to Self-Certify annually. Every two to three years, the entity should undergo an on-site audit.

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Michael C. Calimano	
Organization:	New York Independent System Operator	
Telephone:	518-356-6129	
Email:	mcalimano@nyiso.com	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☒ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
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Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

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Generator Operator	☐ Yes ☐ No
Purchasing-Selling Entity	☐ Yes ☐ No
Market Operator	☐ Yes ☐ No
Load-Serving Entity	☐ Yes ☐ No

Comments

The standard should be initally developed to support only those personel who are required to be NERC certified. Once the standards have been established and fully implemented at that level, expansion of the target audience should be examined.

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☐ Yes

☒ No

If yes, please explain.

Are there existing elements that should be excluded in this proposal?

☒ Yes

☐ No

If yes, please explain.

Several items need clarification:
The distinction between job related OJT, Cross training, and progression training.
The distincition between situational awarness and system awarenesss.
The distinction between "learning management system" and Training Plan/Training Schedule/Progress Assessment/Documentation/Record Retention.
Item 7f should be deleted as redundant. It is included in 6 and 7 a-c.
Item 8b should be deleted as redundant. It is part or 8a.
It would make more sense to more explicitly link item 1f "program design" with item 8a "Adheres to the NERC Contining Education program criteria".

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Comments

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

In the case of most organizations there will be a substantial operating staff increase required to provide operators with sufficent training time (6 crew shift rotations in place of 4 and 5 crew shift rotations). There will be an amost universal need to create or increase the size of training staffs to to conduct continual Job Task Analysis, develop training modules for all tasks, continually validate and verify of individual training modules, and maintain of the "learning management system" (training plans/training schedules/progress assessment/documentation/records retention - all on an individual basis).

Comments

This standard is is being created to rectify the absence of existing staff levels sufficient to meet the in the training needs of system operators. If there were sufficient staffing, there would not be need for this standard.

Operating or training staffing levels should be be dictated as part of the standard. The individual entity should have the flexibility to deterime the most effective mechanism to meet their particular training needs. Face-to-face training options require different staffing levels than a full e-learning approach.

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Full training audit compliance should be included in the normal sequence of NERC functional organization audits.

Complaince should be phased in due to the magnitude of the staffing and progam development needs.

Comments

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments

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NERC Region		**Registered Ballot Body Segment**
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Group Comments (Complete this page if comments are from a group.)

Group Name: RTO/ISO Standards Review Committee

Lead Contact: **Karl Tammar**

Contact Organization: **NYISO**

Contact Segment: **2**

Contact Telephone: **518-356-6205**

Contact Email: **ktammar@nyiso.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Dale McMaster	**AESO**		**2**
Ed Riley	**CAISO**		**2**
Sam Jones	**ERCOT**		**2**
Peter Henderson	**IESO**		**2**
Peter Brandien	**ISO-NE**		**2**
Bill Phillips	**MISO**		**2**
Karl Tammar	**NYISO**		**2**
Bruce Balmat	**PJM**		**2**
Charles Yeung	**SPP**		**2**

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Background Information:

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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

There is a need for a training standard and we applaud the intent. Such a standard should be the single location for all training requirements (presently training requirements are found in several locations) for the appropriate functions. However, the proposed standard appears to apply a "one size fits all" approach to every authority and function. If this is the case, then this approach is likely to be unrealistic. It should be clear as to which functions should be certuified versus having taken accredited courses. Also, clarity is needed that there will be different typres of certification rather than just NERC Operator Certification.

NERC needs to better define the Scope of this standard. Is the intent of the standard to measure compliance of the the training of (reliability entity) personnel regarding NERC Reliability Standards, or is the standard meant to measure compliance of all Training Programs? If the intent is the former, then the question is , is there enough material to really test ?, since some of the NERC standards applying to owners for example only require communications of data. If the intent is the latter, then the question is, is NERC the right organization to evaluate in-house training programs? given the diversity of operating approaches used in North America. In this case, the some programs are probably better evaluated by those closer to the needs and responsibilities of the individual organization.

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
Interchange Authority	☐ Yes ☐ No
Planning Authority	☐ Yes ☒ No
Resource Planner	☐ Yes ☒ No
Transmission Service Provider	☐ Yes ☒ No
Transmission Planner	☐ Yes ☒ No
Transmission Service Provider	☐ Yes ☒ No
Transmission Owner	☐ Yes ☒ No
Transmission Operator	☒ Yes ☐ No
Distribution Provider	☐ Yes ☒ No
Generator Owner	☐ Yes ☒ No
Generator Operator	☐ Yes ☒ No
Purchasing-Selling Entity	☐ Yes ☒ No
Market Operator	☐ Yes ☒ No
Load-Serving Entity	☐ Yes ☒ No

Comments

Support staff and other operators not required to be certified should be able to meet their obligations by participating in NERC continuing eduction.

TSP is listed twice. Was there supposed to be some other entity?

The industry needs a little more definition and clarity on who is the functional entity (IA, RA, PA, etc.)

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☒ Yes

☒ No

If yes, please explain.

There are two conflicting questions. The training program requirements are more than adequate (and may not be necessary for some training programs).

Are there existing elements that should be excluded in this proposal?

☒ Yes

☐ No

If yes, please explain.

Again, the one size fits all causes problems. What type of emergency (or situational awareness or simulator) training should PSE, IA or Planning Authority participate? As another example, why do all these entities need to perform independent JTAs when it's likely something will need to be created at the NERC level to review the JTAs (unless the intent is to check compliance by seeing if there is a document called "JTA" as opposed to a thoughtful analysis).

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

.

Comments

There will be site-to-site differences. There would be some regional differences in content and topics, but there should be no regional differences in general training requirements. Some of the NERC functional definitions need more detail (who is the transmission operator, interchange authority, reliability authority, etc.).

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

Each location would have different requirements. In general, there would likely be an additional person needed for every 5-10 people subject to this standard (to maintain the program, coordination training and provide relief for workers to participate in training, etc.). In addition, each organization subject to this standard would need a person for each occupation (for perhaps a year) to develop the program and get it started. A simulator requirement would add workload (setup, maintenance and running scenarios).

Comments

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Comments
Every 3-5 years as part of normal compliance review. The organization's ability to meet the other NERC standards is a measure of the success of their training program.

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments
Again, the one-size-fits-all approach does not appear to be justified. If an operator or authority does not need to be certified, their training requirements should be less. Continuing eduction with some focus on recommended topics that could be tailored locally would be valuable and would relieve much of the administrative burden.

It might be better if this standard applied (for now) only to those entities that must be certified. Training of everyone is important and necessary, but consider the administration if NERC required that each RRC check every generator operator and purchasing selling entity training records versus this standard. If the industry agrees that Generator Operators and others need to be certified then apply the standard. Again, training programs are probably better evaluated locally.

A continuing eduction requirement with some in a set of approved topics may be more appropriate for non-certified entities.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Raj Rana - Coordinator	
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Email:	raj_rana@AEP.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **ECAR** ☐ **FRCC** ☐ **MAAC** ☐ **MAIN** ☐ **MAPP** ☐ **NPCC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA - Not Applicable**	☒	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
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	☐	4 - Transmission-dependent Utilities
	☐	5 - Electric Generators
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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
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Generator Operator	☐ Yes ☐ No
Purchasing-Selling Entity	☐ Yes ☐ No
Market Operator	☐ Yes ☐ No
Load-Serving Entity	☐ Yes ☐ No

Comments

There should be a baseline competency for each Functional model entity listed above. However, recognizing that the baseline competency varies by entity class, therefore it can't be a "one size fits all" concept. The Standard should consider this factor and be flexible to the varying needs of the intended entity class

The training needs and requirements for a RA/RC and TOP differ from that of a BA or IA. The standard should be clear on that point and have different requiements for each of the enitities. An IA should not have to have staff with the same knowledge and expertise as a RA/RC.

The Standard should only include the entites checked above. Additionally, the Standard should not cover management.

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☒ Yes

☐ No

If yes, please explain.

The Standard needs to define the baseline competencies of the training program individually for each Functional model entity listed above, as they have different needs and requirements. Also, the Standard needs to define the essential elements of a training program idividually for the RA/RC, BA, IA, and TOP, as they each have different needs and requirements.

Are there existing elements that should be excluded in this proposal?

☒ Yes

☐ No

If yes, please explain.

5.a.i: The Standard should target just the RA/RC, BA, IA, and TOP and their support staff. The standard should not apply to all functional entities in the Fucntional Model nor to management.

6.a and 6.b: Delete all of 6.a and 6.b. The Standard should not dictate staffing levels. This is a business decision. The standard may influence staffing levels via the requirement for the amount of annual training, which is OK, but it should not dictate staffing levels by saying you need x staff for a system operator shift, etc. An entity may need no training staff if they decide to outsource 100% of their training needs.

7.a: Facilities. We question the wisdom of a NERC Standard dictating facility requirements for training, other then to state that adequate facilities need to be provided. Depending upon how an entity decides to provide the required training, they may not need much in the way of physical training facilities, i.e. if they decide to outsource all their training and send their staff to a vendor's training facilities. We would agree that it is appropriate for inclusion in a Standard to specify some boundaries/requirements inregard to how training should be facilitated or proctored, but we are not sure if that is what is meant by this bullet point on "Facilities."

7.f: Delete Funding. It is inappropriate for a NERC Reliability Standard to dictate a certain level of funding. Funding is not a proper measure of a Standard, performance is.

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Comments

However, some of the Regions and RTOs have separate training requirements for their members, which may or may not go beyond those proposed by this Standard. It is our belief that Regions and/or RTOs should be allowed to have more stringent requirements if they so choose, but should not be allowed or granted exceptions from this proposed NERC Standard if they desire weaker requirements. Further, we encourage the Regions and RTOs that have additional training requirements, to structure their requirements such that credit hours counted towards meeting their requirements could also count toward meeting the proposed NERC Standard requirements. However, we would be oppossed to diluting the proposed NERC Standard in order to meet a Region's or RTO's lesser requirements. To clarify by example, if the proposed NERC Standard required 32 hours of emergency training and a Region or RTO required their members to have 50 hours of emergency training, we would want the Region and RTO to structure their requirements such that once completeing the Region/RTO's 50 hours of emergency training, that 32 hours of that training also met the requirements of the proposed NERC Standard regarding emergency training. That is, the method of determing what is required in order to officially count an hour as a credit towards meeting the Region/RTO requirement needs to be at least as strict as the NERC requirement for what counts as an hour of training.

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☐ No

If no, please explain what staffing changes might be needed.

Comments

For AEP, yes, I believe we can implement the proposed standard with our existing staffing levels. However, that is because we have already increased our staffing since the August 2003 Blackout, specifically to allow for more training. It would be inappropriate for us to speculate for the rest of the industry.

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Comments
It should be similar to policies today. Specifically, annual self-certification and then as part of on-site audits every three years.

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Theodore G. Pappas	
Organization:	New York State Reliability Council	
Telephone:	516-545-4011	
Email:	tpappas@service.lipower.org	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☒ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

The training should be broken into three segments. The first should be certification training or that training needed to maintain certification. This would be applicable to the RA, BA, IA, Transmission Operator and possibly the Market Operator In other words control room oerator training. The second segment should be for those not directly involved in the operation of the power system. This would apply to the Planning Authority, Resource Planner and Transmission Planner. The third segment should be for generator operators and would cover items susch as interconnections, VAR flow, relaying, etc sothat these operators can develop an understanding of the working of the power system and their impact on it.

The standard should define the training subjects, total hours and, for continued education, the frequency.Flexibility is key so defining specific hours to each subject is not appropriate.

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
Interchange Authority	☒ Yes ☐ No
Planning Authority	☒ Yes ☐ No
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Transmission Service Provider	☒ Yes ☐ No
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Transmission Operator	☒ Yes ☐ No
Distribution Provider	☐ Yes ☒ No
Generator Owner	☐ Yes ☒ No
Generator Operator	☒ Yes ☐ No
Purchasing-Selling Entity	☐ Yes ☒ No
Market Operator	☒ Yes ☐ No
Load-Serving Entity	☐ Yes ☒ No

Comments

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☐ Yes

☒ No

If yes, please explain.

Are there existing elements that should be excluded in this proposal?

☒ Yes

☐ No

If yes, please explain.

Much of the training is inappropriate for people not directly involved in operations or planning such as certain levels of management or support staff.

Comments

The training program should not be so rigid that a training group is required. Senior staff should be capable of providing the training.

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Comments

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☐ No

If no, please explain what staffing changes might be needed.

Comments

The response depends on the final product. If it is a very formal and rigid plan, similar to the nuclear industry, additional staff will be required.

Question 6: How and how often should training programs be reviewed for compliance with the standard?

The program should be self certified for compliance with audits on a biannual basis.

Comments

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Alan Gale	
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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☒ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐ ☐ ☐ ☐ ☒ ☐ ☐ ☐ ☐ ☐	1 - Transmission Owners 2 - RTOs, ISOs, Regional Reliability Councils 3 - Load-serving Entities 4 - Transmission-dependent Utilities 5 - Electric Generators 6 - Electricity Brokers, Aggregators, and Marketers 7 - Large Electricity End Users 8 - Small Electricity End Users 9 - Federal, State, Provincial Regulatory or other Government Entities

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Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

Although the industry has survived without one for several years, the investigation of the August 14th blackout has pretty much dictated that this be yes.

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
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Load-Serving Entity	☒ Yes ☐ No

Comments

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☐ Yes

☒ No

If yes, please explain.

Are there existing elements that should be excluded in this proposal?

☒ Yes

☐ No

If yes, please explain.

Certification preparation
Progression Training
Learning management system (LMS)
Number of hours
Advanced system operations training

Comments

Certification Preparation - Each candidate must prepare for the exam and the measure is passing the test. A formal program to say what needs to be trained on before you can take the test is unnecessary. Would this preclude an individual from taking the test on his own, being hired, and then be non-compliant because he did not complete the "certification preparation" training but yet is certified?

Progression Training - The training requirements for a company to advance an employee should be dictated by that company. The reliability of the grid should address the position, not the advancement to that position. If the "higher" position has additional training requirements, address those requirements, not what is needed to move up to that position.

LMS - What is this intended to be? I do not recall seeing this in a list of definitions. Is this a "buzz word" that a particular vendor uses in describing their system? What would be in it that would not fall under Documentation or Record Retention?

Number of hours - This contradicts the "Competency-based" objectives. Is the goal competent operators or having enough hours. You can have one with or without the other. Since this SAR does not address CEH's or Certification maintenance a specific number of hours would be easier to budget for, but may not yield the intended reliable operations.

Advanced system operations training - How advanced is this intended to be? How much greater than basic? How much more "reliable" than "reliable"? The Detailed Description states "The goal would be to promote the reliability of the Interconnection through the setting of appropriate MINIMUM training requirements for system personnel." Having advanced training sounds like more than the minimum requirements.

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☐ Yes

☒ No

If yes, please list the region-specific differences.

Minimum standards should be minimum standards. If a region needs something beyond that , it should become a regional requirement.

Comments

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

- We anticipate that at least 2 additional "trainers" will be needed. In addition to the additional work load to support the training, and the research, and the administration required to become a NERC Certified CEH provider, the qualifications of these personnel is not yet known. There is no clarification as to what "competent in both knowledge of the subject and instructional capabilities" really means.
These words seem to lead to the conclusion that we will have to hire outside agencies of ex-utility workers that have become trainers.

- Additional System Operators will be needed to adequately support the targeted hours and still be able to cover minimum vacation and sick time.

- Additional trainers and Operators will be needed each year to satisfy Item 6 "Staffing level adequacy needed to improve the quality and quantity of training." This statement also seems to go beyond the goal of setting minimum standards. It also goes beyond the Purpose/Industry need of "adequate". We will need more and more every year?

Comments

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Reviews should be consistant with other standards.

Comments

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments
5a. "support staff" needs to be clarified. If the position does not need to be certified, why do they need to fall under this requirement. Are we saying that the training requirements of their respective professional certification (i.e. PE) is inadequate? The same can be said of "management".

8a. Why does a companies training plan have to adhere to the CE program? There is no discussion here of how to maintain certification. In fact it is patently obvious that it was intentionally avoided. Is the goal of this to have quality training or further the CE programs viability? Why can't all the training requirements be in one place?

8b. Approval and revocation processes for what? Being a CEH provider or certifying my training program? Compliance monitoring should be sufficient. Why is a separate process neeeded? The CEH process already contains a system for approval and revocation, it's duplication here will increase administrative work load unnecessarily.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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Email:	maheimbach@pplweb.com	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☒ MAAC ☒ MAIN ☐ MAPP ☒ NPCC ☐ SERC ☐ SPP ☒ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
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	☒	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

* If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

Posted for comments is the first posting of the System Personnel Training Standard Authorization Request. The US-Canada Power System Outage Task Force identified training as one of several initiatives that should be undertaken to enhance the reliability of the bulk interconnected grid. In their report on the August 14, 2003, outage the task force stated "Any person with access to a control room should be trained so that he or she understands the basic functions of the control room … under any conditions." This Standard Authorization Request was initiated, in part, to address this recommendation.

The requestor would like to gauge the level of consensus regarding the scope of this SAR and to obtain the input of the industry prior to determining the final scope and requirements of the SAR. Accordingly, your comments included on this form, emailed with the subject "System Personnel Training SAR Comments" by January 07, 2005, would be appreciated.

Question 1: Do you agree there is a reliability need for the proposed training standard?

☒ Yes

☐ No

Comments

All real-time market participants must have some level of training dependent upon the potential effects they may have on system reliability.

Question 2: Regarding the applicability of the SAR:

Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator	☒ Yes ☐ No
Balancing Authority	☒ Yes ☐ No
Interchange Authority	☒ Yes ☐ No
Planning Authority	☐ Yes ☒ No
Resource Planner	☐ Yes ☒ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Planner	☐ Yes ☒ No
Transmission Service Provider	☒ Yes ☐ No
Transmission Owner	☒ Yes ☐ No
Transmission Operator	☒ Yes ☐ No
Distribution Provider	☒ Yes ☐ No
Generator Owner	☒ Yes ☐ No
Generator Operator	☒ Yes ☐ No
Purchasing-Selling Entity	☒ Yes ☐ No
Market Operator	☒ Yes ☐ No
Load-Serving Entity	☒ Yes ☐ No

Comments

It should apply to all entities that can affect real-time operations. However, the training requirements for each entity should be different dependent on the way they can affect the system.

Question 3: Do you believe the content as outlined in the Standard Authorization Request is adequate?

Are additional elements that should be included in this proposed standard?

☐ Yes

☒ No

If yes, please explain.

Are there existing elements that should be excluded in this proposal?

☐ Yes

☒ No

If yes, please explain.

Comments

Question 4: Do you believe there are any regional differences that should exist in the proposed standard?

☒ Yes

☐ No

If yes, please list the region-specific differences.

My perspective is one of a Generator Operator which operates in four different Reliability Councils (centralized dispatch generation control center with control of multiple generation assets in multiple regions). Each Council has unique differences that must be accomodated.

Comments

Question 5: Do you believe it is practical to implement the proposed standard with the existing staffing levels?

☐ Yes

☒ No

If no, please explain what staffing changes might be needed.

I have no training staff so it would be impossible to design/implement formal training just for my group without additional staffing/expenditures. However, we do participate in all "pool wide" system operator training that is offered in MAAC and MAIN (via PJM) and applicable to Generation Operators. This is the type of training I would depend on to meet the requirements.

Comments

Question 6: How and how often should training programs be reviewed for compliance with the standard?

Every five years.

Comments

Question 7: Please enter any additional comments you have regarding the proposed SAR below.

Comments
Some random thoughts: Although we do operate in several Reliability Councils and I admit there are clearly regional differences, the minimum standard should be global so I don't have to meet different minimum standards. The training should be web/computer based so it is available during back shifts. The training needs to be geared towards the responsibilities. For example, the minimum level for Generator Operators need not be at the same level as that of Reliability Coordinators. The costs should be spread across all market participants because the entire market benefits from reliability..

Background

The System Personnel Training SAR Drafting Team thanks all those who submitted comments with the posting of the first draft of the SAR for personnel training. After careful review and consideration of all comments received, the drafting team has prepared a revised SAR for additional comments.

The drafting team posted the first draft of its SAR for comment from 12/07/04–01/07/05. The drafting team received 19 sets of comments. The comments can be viewed in their original format at:

ftp://www.nerc.com/pub/sys/all_updl/standards/sar/System_Personnel_Training_Comments.pdf

If you feel that the drafting team overlooked your comments, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Gerry Cauley at 609-452-8060 or at gerry.cauley@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.

Introduction

The public comments on the latest standards authorization request for the NERC Training Standard revealed that the SAR did not explain adequately the intent of the proposed training standard nor the concepts upon which that standard would be based. This response provides more detail, and, along with the revisions we have made to the SAR, should provide greater comfort to those who identified key issues with our previous draft.

The SAR drafting team noted three common concerns among these public comments, specifically that the standard seemed to:

1. Unduly prescribe the details for training programs,
2. Cover too broad a range of operating personnel, and
3. Require a "one size fits all" approach to training

The comments also indicated some confusion surrounding the separation and interdependencies of training, personnel certification, organization certification and continuing education, which we will clear up as well.

This response to the public comments is divided into five sections:

1. General explanation of the concepts of the standard,
2. What the standard *does not* cover,
3. Responses to the three common concerns listed above
4. Responses to all other comments, and
5. Drafting team roster with email addresses and phone numbers. The team will be glad to answer your questions.

Applicability of the Standard

The scope of the initial training standard will be limited to the initial training of new staff and the continuing education of existing staff performing operating tasks in real-time that directly impact the reliability of the Bulk Electric System (BES).

The Goal of the Training Standard: Competency

The goal of operator training is to develop *competency*, which is "the ability to do something well or to a required standard."[1] Competent system operators understand the tasks they are expected to perform and how to do those tasks. They also understand the reliability standards to which they and their organizations are held accountable. The organization, in turn, must design and implement its training program to ensure this competency. The proposed NERC training standard includes the requirements for these training programs.

[1] Source: Encarta Dictionary

Approach to Developing A Training Standard

The approach of the revised SAR for a training standard is to be flexible to the industry in determining their unique training needs and not try to force a single set of training topics on a widely diversified audience. To provide for flexibility is not a compromise on the quality of training and is in fact quite the opposite. Quality training results from applying a systematic approach to training that includes training needs assessment, training development, delivery, and evaluation. Using this process, an organization can identify training needs and deliver quality training that eliminates competency gaps. Not using this fundamental process for training, or leaving out any step in the process, will not produce training that can validate competency required for job performance.

The primary purpose of training is to produce competency where a gap exists between ability (or performance required for the job) and the existing competency of a person performing that job. A systematic approach to training starts by determining performance requirements. You must know what performance is required before you can say the capability to perform exists or not. Determining performance requirements simply means knowing what a person is supposed to be able to do, and is only the first step in determining and delivering training that produces needed competency. Once you know what is supposed to be done and how well (performance requirements), you must then determine the existing level of competency of personnel performing those tasks. The process for determining the difference between required competency and existing competency, which is a competency gap, is termed training needs assessment.

Valid training is the result of a systematic approach to identify performance deficiencies and correcting the lack of ability to perform with valid training. Training, without attention to other performance factors such as tools, etc. required to do a job cannot make performance happen. Training, when done using a systematic approach, can guarantee competency, or the ability to perform. However, training, without attention to other performance factors such as tools, procedures, etc. required to do a job, cannot make performance happen.

The approach to a training standard could be to select a list of topics that must be covered and a specific number of hours per year of training. That approach would guarantee nothing in terms of competency. Learning might occur, but whether or not the right learning occurred would be unknown without a method for validating learning. That is the principle of the systematic approach to training – training is a process that, without each of it s critical elements, cannot guarantee competency. Without competency performance will not occur as desired.

The approach being proposed in the revised SAR, will be based on the fact that developing and maintaining an effective training program involves a number of steps:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
2. **Designing and adjusting the training program** to make sure it directly correlates performance requirements, learning objectives, and learning evaluation to tasks. The training program must be designed to bring the system operators from their current level of competency to the organization's desired level of competency.

3. **Developing the training program** to include effective learning experiences and delivery methods. The approach to this step, as well as step 2, will drive the requirements for training and operating staffs.
4. **Delivering the training to the personnel** to ensure that the training actually takes place as designed.
5. **Verifying and documenting the competency** that the personnel achieved through a documented assessment process.

When all of these steps are correctly applied, training will be able to validate competency. The omission of any step means that the training cannot guarantee the desired competency. The training standard includes all five of these steps, and measures compliance by requiring documentation that these steps were performed. If the process is followed, credible training will result. If the process is not followed, the needed learning may not occur.

Requirements the Training Standard Does Not Include

Does not specify the number of hours of training the organization must deliver, with one exception: that every system operator must receive at least 32 hours of training in emergency operations. This training was specifically required in NERC's original recommendations following its initial investigations into the August 2003 blackout and the drafting team agrees it must be in the training standard until data substantiates another number.

Does not specify who must be trained. That's the purpose of the job and task analysis. The Personnel Subcommittee (PS) is conducting a job and task analysis to provide the industry with a solid base of tasks that impact reliability. (See text box at right on Determining Tasks.)

Does not list the training subjects that must be taught. The subjects must be germane to the tasks that the system operators perform, and these are revealed through the job and task analysis. Even though the PS is supplying the majority of operator tasks that directly impact reliability, the list is neither complete, nor does it specify specific training requirements for an organization. A needs assessment must still be conducted by each organization to determine the training needs of their personnel.

Determining tasks

The proposed training standard will require every organization to determine the tasks that its operating personnel perform. This is accomplished through a task analysis or a job and task analysis (JTA). Organizations with long-established training programs conduct JTAs whenever needed to ensure their training programs include the proper content. But most organizations, especially those who do not have their own training programs, probably don't perform JTAs.

The proposed standard does not require the organization to perform a formal JTA. It does require the organization to explain how it identified the tasks for which its training program was designed.

To help the industry identify these critical operating tasks, the NERC Personnel Subcommittee is conducting three studies. The first study determined the competencies of excellent operators. The second will identify the tasks done by operating personnel that directly impact reliability. The third will identify tasks performed by support personnel that directly impact reliability. The results of the first two studies will be factored into the initial training standard. In late 2006, the study of support personnel tasks will be included in a revision to the training standard. Organizations may use this "generic" JTA to identify those operating personnel who must be included in their training program, but they must conduct a training needs assessment to determine the specific training needs of their personnel.

Does not require operator certification or specify who must be certified. NERC certification of personnel is not covered by this standard.

Does not specify how many hours of NERC continuing education a system operator must have for renewal of a NERC certificate.

Does not require a specific number of training staff. The number of qualified training staff is a function of training needed to maintain qualified operating personnel, which must be determined by each organization. Staffing with qualified personnel to operate is a responsibility of each organization impacting the reliability of the BES.

Does not require an operator training simulator, though it does require simulation training as part of the training in emergency operations, the standard must certainly encompass training using simulators

Does not accredit training programs. If the systematic approach to training is followed, training programs will be credible and produce the desired competency.

Responses to General Comments

In this section of the drafting team's response, we will focus on the three most common comments.

Comment 1. The Training Standard Is Too Prescriptive

Comments from Guy Zito, Kathleen Goodman, Ralph Rufrano, Greg Campoli, Pete Lebro, Roger Champagne, Khaqan Khan, Al Adamsom, David Kiguel, Robert Pelligrini, David Little, Brian Hogue, and Jerry Mosier stated that:

> "There needs to be the flexibility to tailor the training to the individual involved. Requirements should be limited to Certification Standards. NERC is being overly descriptive of "how to" conduct training rather than achieving specific results. NERC Standards should be "object oriented," that is, specify what the final requirements are. Prescribing how each entity goes about to achieve these objectives is beyond NERC's mandate."

Response

The training needs of each organization and each individual are different because each organization has a somewhat different set of tasks assigned to an individual, and each individual has different levels of competency for the set of tasks that is their job. The approach of the revised SAR is to provide maximum flexibility to the industry by requiring a fundamentally sound process to be followed in determining training needs for operating personnel in a specific organization. It would be overly prescriptive to list a set of topics that must be taught to all system operators for some arbitrary number of hours per year. The drafting team cannot know the training needs of each organization in the industry. That is why the approach was taken in the revised SAR to require that a valid process for determining training needs be followed by each organization employing operating personnel that can impact system reliability.

As we listed in the section "Requirements the Training Standard Does Not Include," the proposed training standard does not overly or unduly prescribe *how* training must be administered or *how* many courses must be taught. It does, however, require all

organizations to determine *what* their system operators do and then develop training programs to ensure that the system operators perform those tasks and responsibilities competently. This is not being unduly prescriptive—in fact it's quite the opposite. For a training program to be effective, especially when associated with a certification program, it must be flexible enough to train to the *tasks* that the organization's personnel perform. This is the way effective training programs are developed in all industries which are striving to achieve excellence through competent performance of their personnel.

As to the results of the training program, those are measured through the organization's assessments and examinations of its students that the organization must conduct.

Comment 2. The Training Standard Is A "One Size Fits All"

Comments from Karl Tammar, Dale McMaster, Ed Riley, Sam Jones, Peter Henderson, Peter Brandien, Bill Phillips, Bruce Balmat, Charles Yeung stated that:

> "However, the proposed standard appears to apply a "one size fits all" approach to every authority and function. If this is the case, then this approach is likely to be unrealistic. It should be clear as to which functions should be certified versus having taken accredited courses. Also, clarity is needed that there will be different types of certification rather than just NERC Operator Certification. NERC needs to better define the scope of this standard. Is the intent of the standard to measure compliance of the training of (reliability entity) personnel regarding NERC Reliability Standards, or is the standard meant to measure compliance of all Training Programs? If the intent is the former, then the question is 'Is there enough material to really test since some of the NERC standards applying to owners, for example, only require communications of data?' If the intent is the latter, then the question is, 'Is NERC the right organization to evaluate in-house training programs given the diversity of operating approaches used in North America?' In this case, some programs are probably better evaluated by those closer to the needs and responsibilities of the individual organization."

Response

We received similar comments from others, or the reverse comment that the training standard must be flexible enough to provide the appropriate training for the tasks that are performed. We agree and have limited the scope of the revised SAR to system operators performing tasks that will directly impact real-time system reliability as identified by the Personnel Subcommittee's proctored Job and Task Analysis. The studies are targeted for completion in the 2nd quarter of 2006. The task list derived from the PS's JTA will not and cannot be all inclusive. Organizations must still conduct a needs assessment to determine training needs for the operating tasks their operators perform .

The proposed training standard does not take a "one size fits all" approach. In fact, to be truly effective, it can't because effective training must be tailored to the *tasks* that system operators perform, not whether they work for an organization who registers as a particular responsible entity as defined in the functional model, such as a Transmission Operator or Reliability Coordinator.

For example, all Regional Transmission Organizations have registered as transmission operators, and most—but not all—of their members have as well. However, not all RTO operating personnel perform physical transmission switching *tasks* and their training program would not need extensive instruction in those switching operations. On the other hand, the RTOs' members who operate SCADA centers do need training in transmission tagging and switching *tasks*, but may not need training in wide-area contingency analysis. That is a *task* the RTO staff handles because the RTO, not the SCADA operator, has the wide area view.

The RTO's job and task analysis will reveal that its system operators do not perform transmission switching tasks, and the RTO member's JTA will reveal that its personnel do. Of course, we expect these organizations already know this, but this example shows that the training programs for the RTO as the Transmission Operator and its member as a Transmission Operator may not be the same, and, in fact, the training standard will require that each organization's training program be tailored to the tasks that its operating personnel perform.

The proposed training standard does not require that training programs be accredited or approved, and, as we explained earlier, is not intended to specify personnel certification requirements. Those requirements are in other NERC standards and will be reviewed by the Personnel Subcommittee upon completion of the Training Standard. Training is a much broader issue than certification.

Comment 3. The Scope of the Training Standard Is Too "Wide" Or Too "Deep"

James Stanton commented that:

> "The proposed Standard is overly broad and ambiguous, and should not uniformly apply to anyone."

NPCC noted that:

> "... anyone engaged in direct operating/control activity for the Bulk Power System should be properly qualified/certified. An alternative approach to the above also discussed might also involve only requiring NERC Certifiable Functions i.e. Reliability Authority (RC), Balancing Authority, Interchange Authority, Transmission Operator to adhere to the resultant standard."

Karl Tammar, Dale McMaster, Ed Riley, Sam Jones, Peter Henderson, Peter Brandien, Bill Phillips, Bruce Balmat, and Charles Yeung stated that:

> "Support staff and other operators not required to be certified should be able to meet their obligations by participating in NERC continuing education."

> "The industry needs a little more definition and clarity on who is the functional entity (IA, RA, PA, etc.)"

Response

The drafting team will focus the scope of this first version of the training standard to those operating personnel who *directly perform* the tasks critical to the reliable operation of the bulk electric system. NERC will identify those tasks in a JTA that it is conducting this spring with system operators, and we will list those tasks in the standard. These tasks will be those most likely performed by Reliability Coordinators, Balancing Authorities, and Transmission Operators. However, we do not want to assume that no other organizations perform any of these tasks. Therefore, the drafting team will continue to check all responsible entities on the standards authorization request, making it clear that only those organizations whose personnel perform one or more of the listed tasks must comply with the standard.

NERC will conduct future JTAs to identify the tasks that support and supervisory personnel perform with the idea of revising the training standard in the future to include these new tasks.

In regard to the relationship between training and certification, training is a broader issue than certification. Certification may require a minimal competency in knowledge across the broad spectrum of all system operators that perform for example, reliability tasks. Certification says nothing about performing specific tasks for a specific organization. Training, on the other hand, must at some point address organization-specific requirements to perform the tasks of a system reliability coordinator for that specific organization. The training standard does not address which operating personnel must be certified. Other standards contain those requirements. The question of which personnel should be certified will be re-examined by the Personnel Subcommittee upon completion of the Training Standard.

To address these comments, we need to look at the breadth and depth of the proposed standard.

Breadth. By *breadth*, we mean two things. First, the variety of responsible entities—Transmission Operators, Reliability Coordinators, Balancing Authorities and so on—to which the training standard applies. Second, we mean the population of operating personnel for which the training programs must be developed. For example, an RTO member who does not register as a Transmission Operator may instead see itself as only a Distribution Provider (DP) or Load-Serving Entity (LSE). If NERC does not include the DP and LSE in the training standard, there is no compelling reason for these organizations to utilize a systematic approach to training, even though their operating personnel may perform *tasks* that can affect the operations of the high-voltage transmission system. So unlike other NERC standards, the training standard cannot be limited to just those responsible entities that some may consider the more obvious candidates for operator training programs.

This also means that organizations that are transmission dependent and normally thought of as too small to require operator training may need training for their personnel who perform transmission operating tasks that can affect the bulk electric system. While the training requirements may be minimal, they are nonetheless important and NERC cannot overlook these organizations.

To this point, the training standard does not require an organization to have training staff, but rather utilize a systematic approach to training. This training program can be provided through vendors or even arrangements with other utilities who do have training staffs and programs of their own. It would be quite reasonable for operators at a smaller municipal or

cooperative utility that operates, say, a 230 kV switchyard to receive training from that utility's Transmission Operator neighbor that operates the rest of the system to which that switchyard is connected. As long as the smaller utility can demonstrate that it determined the tasks that its operators perform and that those operators were trained to those tasks, the utility can comply with the training standard.

Depth. As to the *depth* within an organization's management structure to which the training standard applies, this, too, will be revealed by the JTA. For example, the JTA will make quite clear the wide array of critical operating tasks that the operating personnel "on the desks" perform. And it is these tasks that must be covered in the organization's training if that training is to be relevant to the operators' competency.

On the other hand, the vice-president of operations, while certainly responsible for the reliable operations of the system, does not perform these operating tasks and would need little training in the details of breaker switching or reactive control.

Responses to Individual Comments

In this section we list our responses to each comment. For efficiency's sake, if the comment is one of the three General Comments discussed above, we noted that instead of simply repeating the same response.

1. Do you agree there is a reliability need for the proposed training standard?

Commenter	Yes	No	Comment	Response
Total	**19**	**0**		
Anthony Giasi	**X**		However, the training standard must be reasonable and explicit, it must be specific as to which personnel in each entity require training, it must be specific as to the different training protocols not only for the personnel within each entity, but also for the different entities, it must be achievable in a reasonable time frame for a reasonable cost, and not subject to compliance for a reasonable period of time, say three years to allow for formation and implementation.	Please refer to our Responses to General Comments above. We are not sure how to judge "reasonable cost." Training costs should be a matter of the cost to operate competently. The revised SAR focuses all training requirements on the competency to operate. Reasonable cost to operate competently depends on the organization, its functions, the market , and many other factors. Training costs should be directly tied to what is required to operate competently, and the revised SAR stresses this in terms of performance requirements as the basis for training. The Standards Authorization Committee will determine if a field testing period is needed for implementation of the standard.
Guy Zito Kathleen Goodman Ralph Rufrano Greg Campoli Pete Lebro Roger Champagne Khaqan Khan Al Adamsom David Kiguel Robert Pelligrini David Little Brian Hogue Jerry Mosier	**X**		There needs to be the flexibility to tailor the training to the individual involved. Requirements should be limited to Certification Standards. NERC is being overly descriptive of "how to" conduct training rather than achieving specific results. NERC Standards should be "object oriented," that is, specify what the final requirements are. Prescribing how each entity goes about to achieve these objectives is beyond NERC's mandate. Limit this to only Control Room Operating staff that actually "operate" the system.	Please refer to our Response to General Comment 1 above.

Commenter	Yes	No	Comment	Response
James Stanton	X		I believe there is a reliability need for a training standard, though not necessarily the one being proposed.	The drafting team welcomes specific recommendations.
John Neagle	X		AECI agrees with the general concept of a training standard for the purpose of promoting reliability. The SAR does not contain sufficient detail to determine whether or not Associated would agree with a standard based on this SAR.	Please refer to our Response to General Comment 3 above. The new SAR has considerably more detail than the intial SAR. We request that the commenter review the revised SAR and determine if it contains sufficient detail to resolve their concerns and comment accordingly.
Karl Bryan	X		I don't think you are going far enough with the requirement for training. I am constantly amazed at how generation operators do not understand where they fit into the big picture as far as system reliability issues are concerned. Even the little task of voltage support is poorly understood by our operators.	Please refer to our Response to General Comment 3 above. We agree. The Personnel Subcommittee will be conducting another round of job and tasks analysis for personnel that support the reliability of the Bulk Electric System. Generator operators, though they do not operate the transmission component of the bulk electric system, can most definitely impact real-time reliability. This should be verified by the second round of job and task analysis to be completed in early summer, 2006. The training standard will be revised to include any additional tasks identified by the second round of studies to directly impact the reliability of the Bulk Electric System other than what has been traditionally considered system operators

Commenter	Yes	No	Comment	Response
Karl Tammar Dale McMaster Ed Riley Sam Jones Peter Henderson Peter Brandien Bill Phillips Bruce Balmat Charles Yeung Peter Henderson	X		There is a need for a training standard and we applaud the intent. Such a standard should be the single location for all training requirements (presently training requirements are found in several locations) for the appropriate functions. However, the proposed standard appears to apply a "one size fits all" approach to every authority and function. If this is the case, then this approach is likely to be unrealistic. It should be clear as to which functions should be certified versus having taken accredited courses. Also, clarity is needed that there will be different types of certification rather than just NERC Operator Certification. NERC needs to better define the Scope of this standard. Is the intent of the standard to measure compliance of the training of (reliability entity) personnel regarding NERC Reliability Standards, or is the standard meant to measure compliance of all Training Programs? If the intent is the former, then the question is, is there enough material to really test?, since some of the NERC standards applying to owners for example only require communications of data. If the intent is the latter, then the question is, is NERC the right organization to evaluate in-house training programs? Given the diversity of operating approaches used in North America. In this case, some programs are probably better evaluated by those closer to the needs and responsibilities of the individual organization.	Please refer to our Response to General Comment 2 above. Also, the training standard is not a certification standard. Certification requirements are specified in other standards. That said, the certification requirements must consider the training provided to the system operators. That is, NERC cannot require operator certification for tasks that the operator does not perform. That's why the JTA plays a key role in both the training and certification programs. The Personnel Subcommittee has been tasked with examining which personnel must be certified. This will be addressed in 2006, after the training standard is completed. Refer to the General Comment 3 for the relationship of training to certification.
Kathleen Davis Jeff Newsome Rick King	X		A training standard is needed to ensure we have competent personnel who can safely and reliably operate, maintain, and improve the performance of the electric power system. Training for the system operators is critical to the industry as a whole. We are at the beginning stages of where we must go in the future to reassure ourselves and the public at large that the events of August 14th 2003 will not be repeated. For the NERC organization this should be at a minimum, in it's top three priorities.	We agree.

Commenter	Yes	No	Comment	Response
Theodore G. Pappas	X		The training should be broken into three segments. The first should be certification training or that training needed to maintain certification. This would be applicable to the RA, BA, IA, Transmission Operator, and possibly the Market Operator In other words control room operator training. The second segment should be for those not directly involved in the operation of the power system. This would apply to the Planning Authority, Resource Planner, and Transmission Planner. The third segment should be for generator operators and would cover items such as interconnections, VAR flow, relaying, etc so that these operators can develop an understanding of the working of the power system and their impact on it. The standard should define the training subjects, total hours and, for continued education, the frequency. Flexibility is key so defining specific hours to each subject is not appropriate.	Please refer to our Responses to General Comments above. We are having difficulty with the last two sentences in the comment. It says in effect, that the standard should specify training subjects, total hours, and frequency of training, yet be flexible by not specifying hours required for each subject. These appear to be conflicting statements so we do not know how to respond.
Thomas Bradish	X		If we do not develop a focused training standard, we are destined to repeat August 14.	That's why the training standard is so important.Please refer to our Responses to General Comments above.
Alan Gale	X		Although the industry has survived without one for several years, the investigation of the August 14th blackout has pretty much dictated that this be yes.	
Mark Heimbach	X		All real-time market participants must have some level of training dependent upon the potential effects they may have on system reliability.	Please refer to our Responses to General Comments above.
Howard Rulf	X		No comment	
Ken Goldsmith	X		No comment	
Gerald Rheault	X		No comment	
Richard Kafka Michael Maher William Mitchell David Thorne Vic Davis Val Hildebrand	X		No comment	
William Smith	X		No comment	
Michael Calimano	X		No comment	
Raj Rana	X		No comment	

2. Regarding the applicability of the SAR: Indicate which of the following you believe the proposed standard should apply:

Reliability Authority/Coordinator

- Balancing Authority
- Interchange Authority
- Planning Authority
- Resource Planner
- Transmission Service Provider
- Transmission Planner
- Transmission Owner
- Transmission Operator
- Distribution Provider
- Generator Owner
- Generator Operator
- Purchasing-Selling Entity
- Market Operator
- Load-Serving Entity

Comment	Comment	Response
Anthony Giasi	All boxes checked except DP Do the proposed training standards apply to non-registered entities to whom actions or operations are delegated by a registered entity? If yes, why. If not, then do any training standards apply?	**General response**: The comments to this question do not show consensus. As we explain in our responses to the General Comments sections, this standard requires that all organizations determine for themselves if their operating personnel need training. Also, • Please refer to our Responses to General Comments above. • Under the ERO, *all* bulk power system owners, operators, and users will need to register under one of the definitions of the functional model. The revised SAR does limit its scope to those system operators performing real-time tasks that directly impact the reliability of the Bulk Electric System. Support tasks and personnel will be addressed after some additional studies are completed. • Personnel directly responsible for operating the electric power system may reside in organizations other than just the RC, BA, and IA. That's why the scope of the proposed standard includes all responsible entities. However, we will contain the initial job and tasks analysis to those system operators who perform critical operating tasks. The proposed training standard does not include personnel certification requirements. This standard does not address NERC operator certification requirements. • Refer to the General Comment 3 for the relationship of training to certification. Generator operators, though they do not operate the transmission component of the bulk electric system, can most definitely impact real-time reliability. This should be verified by the second
Guy Zito Kathleen Goodman Ralph Rufrano Greg Campoli Pete Lebro Roger Champagne Khaqan Khan Al Adamsom David Kiguel Robert Pelligrini David Little Brian Hogue Jerry Mosier	RC, BA, IA, TSP, TOP, GOP NPCC - believes that anyone engaged in direct operating/control activity for the Bulk Power System should be properly qualified/certified. An alternative approach to the above also discussed might also involve only requiring NERC Certifiable Functions i.e. Reliability Authority (RC), Balancing Authority, Interchange Authority, Transmission Operator to adhere to the resultant standard.	
James Stanton	No boxes checked The proposed Standard is overly broad and ambiguous, and should not uniformly apply to anyone	

Comment	Comment	Response
John Neagle	RC, BA, IA, AECI suggests it is inappropriate and unnecessary for a training standard resulting from this SAR to apply to electric utility industry individuals other than those directly responsible for the operation of the interconnected system, i.e. control center personnel.	round of job and task analysis to be completed in early summer, 2006. The training standard will be revised to include any additional tasks identified by the second round of studies to directly impact the reliability of the Bulk Electric System other than what has been traditionally considered system operators
Karl Bryan	RC, BA, IA, PA, RP, TSP, TP, TOP, DP, GOP, MO, LSE No other comments	
Karl Tammar Dale McMaster Ed Riley Sam Jones Peter Henderson Peter Brandien Bill Phillips Bruce Balmat Charles Yeung	RC, BA, TOP Support staff and other operators not required to be certified should be able to meet their obligations by participating in NERC continuing education. TSP is listed twice. Was there supposed to be some other entity? The industry needs a little more definition and clarity on who is the functional entity (IA, RA, PA, etc.)	
Kathleen Davis Jeff Newsome Rick King	RC, BA, IA, PA, TSP, TOP No other comments	
Peter Henderson	RC, BA, IA, TOP Where we indicated "No" above, does not imply that there should not be training. Support staff and other staff (PA, RP, TSP, GOP, etc) or operators not required to be certified should be able to meet their obligations by participating in NERC continuing education TSP is listed twice. Was there supposed to be some other entity or is it a duplication? The industry needs a little more definition and clarity on who is the functional entity (IA, RA, PA, etc.)	
Theodore G. Pappas	RC, BA, IA, PA, RP, TSP, TP, TOP, GOP, MO No other comments	
Thomas Bradish	All boxes checked, I have checked all of the above because all will need to have some level of knowledge around the operation of the grid. The key phrase is "some level of knowledge'. A one size fits all approach would be over kill and doomed to failure. The training requirements should fit the knowledge requirement of the position.	

Comment	Comment	Response
Alan Gale	RC, BA, IA, PA, TSP, TOP, GOP, PSE, MO, LSE No other comments	
Mark Heimbach	RC, BA, IA, TSP, TO, TOP, DP, GOP, GO, PSE, MO, LSE It should apply to all entities that can affect real-time operations. However, the training requirements for each entity should be different dependent on the way they can affect the system.	
Howard Rulf	RC, BA, IA, PA, TSP, TOP, GOP, PSE, MO, LSE No other comments	
Ken Goldsmith	RC, BA, IA, TSP, TOP, No other comments	
Gerald Rheault	RC, BA, IA, RP, TSP, TP, TOP, DP, GOP, LSE For the Generator Operator category, Manitoba Hydro believes that this Standard should apply for a generator operator at the generation company operations or dispatch center but not to an operator at the thermal or hydraulic plant	
Richard Kafka Michael Maher William Mitchell David Thorne Vic Davis Val Hildebrand	BA, IA, PA, TSP, TOP, GOP, PSE, MO, LSE Those entities operating in real time should have training requirements.	
William Smith	RC, BA, IA, PA, TSP, TOP, GOP, PSE, MO, LSE No other comments	
Michael Calimano	RC, BA, IA, TOP The standard should be initially developed to support only those personnel who are required to be NERC certified. Once the standards have been established and fully implemented at that level, expansion of the target audience should be examined.	

Comment	Comment	Response
Raj Rana	RC, BA, IA, PA, TOP There should be a baseline competency for each Functional model entity listed above. However, recognizing that the baseline competency varies by entity class, therefore it can't be a "one size fits all" concept. The Standard should consider this factor and be flexible to the varying needs of the intended entity class. The training needs and requirements for a RA/RC and TOP differ from that of a BA or IA. The standard should be clear on that point and have different requirements for each of the entities. An IA should not have to have staff with the same knowledge and expertise as a RA/RC. The Standard should only include the entities checked above. Additionally, the Standard should not cover management.	

3. Do you believe the content as outlined in the Standard Authorization Request is adequate?

Q1. Are there additional elements that should be included in this proposed standard?

Q2. Are there existing elements that should be excluded in this proposal?

Drafting Team General Response to Question 3:

The Drafting Team understands that the types of continuous training listed in the SAR were only examples of training that an organization could provide. However, other types of training, such as cross training, could come under the title of other training. Again, the intent is to use a systematic approach in developing all types of training that would be provided.

The overall goal of the training standard will be to provide guidance in how each entity will determine what training is needed for its staff based on performance requirements, some valid method for determining if a competency gap exists, and delivering training that corrects the competency gap. Those competency gaps should be identified on several levels, for example from new employee up through a master operator level. Various types of training appropriate for the situation, but meeting the standard for effective training can then address the gaps. That standard for effective training is the objective of the drafting team.

To help the industry identify critical operating tasks, the NERC Personnel Subcommittee is conducting several studies to determine the competencies of excellent operators, the tasks done by operating personnel that directly impact reliability, and tasks performed by support personnel that directly impact reliability. The first two studies will be completed and the results factored into the initial training standard. The study of support personnel tasks will be included in a revision to the training standard at a later date. Organizations may use these NERC conducted JTAs to identify those operating personnel who must be included in their training program, but they must conduct a training needs assessment to determine the specific training needs of their personnel.

To clarify our intent, it was not to quantify the elements of a training program, but to develop a process that considers key elements of a good training program. (Item 1)

Commenter	Yes	No	Comment	Response
Total				

Commenter	Yes	No	Comment	Response
Anthony Giasi	**XX**		Yes to Q1 and Q2. Qualification testing; Real-time assessments to verify training carried over to the job; Missing the link to competency of existing system operators; Needs to identify the qualifications for the system operator to first sit in the chair; Needs to address resources needed to accomplish the training; Need a training shift for system operators (adequate time dedicated to training) Companies should have plans in place to take a system operator from an initial competency level up to an expert level, however this is not NERC's responsibility. What is written is 'process-oriented' and is not sufficient in detail for all system personnel positions – the scope is too broad (covering too many positions) and the level is too high level (doesn't identify what positions are included in the category called 'system personnel')– a SAR targeted for the individual types of positions (such as a SAR just for the operating authority positions) would be more helpful.	Please refer to our Responses to General Comments above. Qualification training and testing will need to adhere to the same process as any other type of training which is based on an analysis of needs conducted by the employer. The resources will be determined by this same needs analysis. Several changes / additions to the SAR have been made to base training on performance requirements. Performance capability (competency) does not have to, in most cases, be verified on live systems to validate competency. The SAR has been changed to extensively address On-the-Job-Training The approach of focusing on the training process will achieve the most detail you can get, if done correctly. Following a valid process for training is how you get down to the specific requirements for a specific task. The emphasis is on tasks, not job positions because those will vary in the tasks they do from organization to organization. The Job and Task Analysis being conducted by the Personnel Subcommittee will identify many of the jobs performing operating tasks that directly impact reliability, but it will not identify al of them. The performance of tasks impact reliability, not a person's job title. Initial training and testing will need to adhere to the same process as any other type of training which is based on an analysis of needs conducted by the employer. The final standard will address the recommendations of the blackout investigation with respect to who should be trained. The scope of this standard must address all that can impact the reliability of the bulk electrical system.

Commenter	Yes	No	Comment	Response
Guy Zito Kathleen Goodman Ralph Rufrano Greg Campoli Pete Lebro Roger Champagne Khaqan Khan Al Adamsom David Kiguel Robert Pelligrini David Little Brian Hogue Jerry Mosier	X	X	Yes to Q1 and No to Q2. Certification is a control room operator issue.	This standard is not intended to prescribe which personnel should be certified. This standard does not address NERC operator certification requirements.
James Stanton		X	No to Q1 and no check for Q2. The content is inadequate not because of a lack of elements but because of the ambiguity of what it is intended to do. A Training Standard cannot be a "one size fits all" approach for functions as disparate as Reliability Authorities and Purchasing and Selling entities.	Please refer to our Responses to General Comments above as well as the revised SAR and the draft training standard that accompanies the SAR.
John Neagle	X	X	No to Q1 and Yes to Q2. Associated Electric Cooperative Inc. suggests a training standard should address the desired outcomes and should not specify the methods to achieve those outcomes. The SAR does not contain sufficient detail to determine the SAR drafting team's intent, but it appears the resulting standard would be quite prescriptive in many areas. Any elements currently included in the SAR that prescribe facilities, tools, materials, funding, staffing levels, methods, etc. should be deleted. These details are best determined by and should be left to the discretion of the individual company.	Please refer to our Responses to General Comments above.
Karl Bryan	X		Yes to Q2, no check for Q2. I feel that various levels of certification should be developed, similar to engineer in training to registered professional engineer.	• The proposed training standard does not include personnel certification requirements. This standard does not address NERC operator certification requirements.

Commenter	Yes	No	Comment	Response
Karl Tammar Dale McMaster Ed Riley Sam Jones Peter Henderson Peter Brandien Bill Phillips Bruce Balmat Charles Yeung	XX	X	Yes and No to Q1, Yes to Q2. There are two conflicting questions. The training program requirements are more than adequate (and may not be necessary for some training programs). Again, the one size fits all causes problems. What type of emergency (or situational awareness or simulator) training should PSE, IA or Planning Authority participate? As another example, why do all these entities need to perform independent JTAs when it's likely something will need to be created at the NERC level to review the JTAs (unless the intent is to check compliance by seeing if there is a document called "JTA" as opposed to a thoughtful analysis).	Please refer to our Responses to General Comments above and the text box "Determining Tasks."
Kathleen Davis Jeff Newsome Rick King	XX		Yes to Q1 and Q2. One basic tenet or requirement that should be stated is the use of a systematic approach (SAT), based on job performance requirements, to guide the training of system personnel.	We agree and have included language to that effect.
			You should not specify job and task analysis under 1.b. A needs assessment can be satisfied in several ways from a simple needs or job analysis up to a full blown job and task analysis.	We agree regarding the JTA, and have changed the language to needs analysis or assessment.
			There should only be a requirement for documentation and record keeping under 1.i. Administration. A learning management system is one means to document and track training.	We agree with the documentation comment and have changed the language to reflect simply documentation and record keeping
			If hours are specified under initial training requirements they should reflect only the minimum acceptable number of hours for training. If a company does a needs analysis to determine job requirements the time to conduct the initial training program will vary based on the components of the job and the necessary elements to be trained on.	We agree and have modified the SAR to reflect this.
			Progression training and cross training are not consistent with the intent of a continuing training program. A continuing training program is intended to refresh and improve the application of knowledge and job-related skills for the job the trainee works or is qualified to work.	We agree and have modified the SAR to reflect this.

Commenter	Yes	No	Comment	Response
			Simulation training is a platform or method to provide initial and continuing training. I don't feel that it should be addressed separately.	We agree and have modified the SAR to reflect the intent that any method of training delivery needs to be part of the training development process.
Peter Henderson	**XX**	**X**	Yes and no to Q1 and yes to Q2. There are two conflicting questions. The training program requirements are more than adequate (and may not be necessary for some training programs). Again, if the approach is "one size fits all," this will cause problems. What type of emergency (or situational awareness, or simulator) training should PSE, IA or PA participate in? On the other hand, if the intention is to have different courses/certification streamlined for each involved function, then we can understand the approach. However, not all of the functions listed in Q2 should be part of this standard. See comments on Q2.	Please refer to our Responses to General Comments above. There may, however, be some specific requirements for system operators based on information gained through the NERC System Operator Study currently being conducted.
Theodore G. Pappas	**X**	**X**	No to Q1 and Yes to Q2. Much of the training is inappropriate for people not directly involved in operations or planning such as certain levels of management or support staff. The training program should not be so rigid that a training group is required. Senior staff should be capable of providing the training.	Please refer to our Responses to General Comment 3 above. NERC will consider training for management and support staff at a later time. It is not the Drafting Team's intent to define the resources, such as instructors, facilities, and funding. It is the drafting team's intent, however, that certain practices, such as having an operator come to training after working a full shift, is not even a minimally acceptable training process.
Thomas Bradish		**XX**	No to both Q1 and Q2 with no comments	

Commenter	Yes	No	Comment	Response
Alan Gale	**X**	**X**	No to Q1 and Yes to Q2. Certification Preparation - Each candidate must prepare for the exam and the measure is passing the test. A formal program to say what needs to be trained on before you can take the test is unnecessary. Would this preclude an individual from taking the test on his own, being hired, and then be non-compliant because he did not complete the "certification preparation" training but yet is certified? Progression Training - The training requirements for a company to advance an employee should be dictated by that company. The reliability of the grid should address the position, not the advancement to that position. If the "higher" position has additional training requirements, address those requirements, not what is needed to move up to that position. LMS - What is this intended to be? I do not recall seeing this in a list of definitions. Is this a "buzz word" that a particular vendor uses in describing their system? What would be in it that would not fall under Documentation or Record Retention? Number of hours - This contradicts the "Competency-based" objectives. Is the goal competent operators or having enough hours. You can have one with or without the other. Since this SAR does not address CEH's or Certification maintenance a specific number of hours would be easier to budget for, but may not yield the intended reliable operations. Advanced system operations training - How advanced is this intended to be? How much greater than basic? How much more "reliable" than "reliable"? The Detailed Description states "The goal would be to promote the reliability of the Interconnection through the setting of appropriate MINIMUM training requirements for system personnel." Having advanced training sounds like more than the minimum requirements.	First, please refer to our Responses to General Comments above. We have rewritten the SAR and standard to address these comments. Also, the proposed training standard does not include personnel certification requirements. Regarding progression training, it has been taken out of the standard The training process does apply to it just like any other training, but specific reference to it has been removed. LMS is a Learning Management System. Reference to LMS has been removed. We agree about the number of hours. The only reference made in the revised SAR is to a specific number of hours for emergency operations training. We have left that requirement as is because at present, we do not have another number of hours that we can validate, but will include that as an item in future Personnel Subcommittee study. Advance training was meant to refer to continuing education. We have changed the wording accordingly.
Mark Heimbach		**XX**	No for both Q1 and Q2 with no comments.	
Howard Rulf		**XX**	No for both Q1 and Q2 with no comments.	
Ken Goldsmith		**XX**	No for both Q1 and Q2 with no comments.	

Commenter	Yes	No	Comment	Response
Gerald Rheault		**XX**	No for both Q1 and Q2 with no comments.	
Richard Kafka Michael Maher William Mitchell David Thorne Vic Davis Val Hildebrand	**XX**		Yes for both Q1 and Q2 Under Item 1, i. Administration, a Learning Management System is a "how" rather than a "what" and should be eliminated. Item 3, Continuous training requirements, is poorly defined. It mixes topics, categories and methods of training, and many are subsets of others. The list is not properly defined or organized. Item 4, Simulation training: Should identify types, but not prescribe any specific method of simulation or simulator. Item 7, Training resources and staff, f. Funding: funding should not be part of the standard.	The SAR drafting team agrees and the SAR has been rewritten to address these concerns
William Smith	**X**	**X**	No to Q1 and yes to Q2. In item 3 - Continuous training requirements (topics and hours), parts b. Progression training and c. Cross training goes beyond training requirements. These two parts could infringe on Corporate Policy. Part i. Team training should be a desire or suggestion rather than a requirement. In item 1, part c should be excluded since it is just the physical representation of parts a and b. Parts f, g, h, and j should be included in 3.a. as part of the Annual training requirements.	The SAR drafting team agrees and the SAR has been rewritten to address these concerns.

Commenter	Yes	No	Comment	Response
Michael Calimano	X	X	No to Q1 and Yes to Q2. Several items need clarification: The distinction between job related OJT, Cross training, and progression training. The distinctions between situational awareness and system awareness. The distinction between "learning management system" and Training Plan/Training Schedule/Progress Assessment/Documentation/Record Retention. Item 7f should be deleted as redundant. It is included in 6 and 7 a-c. Item 8b should be deleted as redundant. It is part or 8a. It would make more sense to more explicitly link item 1f "program design" with item 8a "Adheres to the NERC Continuing Education program criteria."	The SAR drafting team agrees and the SAR has been rewritten to address these concerns.

Commenter	Yes	No	Comment	Response
Raj Rana	**XX**		Yes to both Q1 and Q2. The Standard needs to define the baseline competencies of the training program individually for each Functional model entity listed above, as they have different needs and requirements. Also, the Standard needs to define the essential elements of a training program individually for the RA/RC, BA, IA, and TOP, as they each have different needs and requirements. 5.a.i: The Standard should target just the RA/RC, BA, IA, and TOP and their support staff. The standard should not apply to all functional entities in the Functional Model nor to management. 6.a and 6.b: Delete all of 6.a and 6.b. The Standard should not dictate staffing levels. This is a business decision. The standard may influence staffing levels via the requirement for the amount of annual training, which is OK, but it should not dictate staffing levels by saying you need x staff for a system operator shift, etc. An entity may need no training staff if they decide to outsource 100% of their training needs. 7.a: Facilities. We question the wisdom of a NERC Standard dictating facility requirements for training, other then to state that adequate facilities need to be provided. Depending upon how an entity decides to provide the required training, they may not need much in the way of physical training facilities, i.e. if they decide to outsource all their training and send their staff to a vendor's training facilities. We would agree that it is appropriate for inclusion in a Standard to specify some boundaries/requirements in regard to how training should be facilitated or proctored, but we are not sure if that is what is meant by this bullet point on "Facilities." 7.f: Delete Funding. It is inappropriate for a NERC Reliability Standard to dictate a certain level of funding. Funding is not a proper measure of a Standard, performance is.	Please refer to our Responses to General Comments above. In regard to the applicability of the standard, the revised SAR does limit its scope to those system operators performing real-time tasks that directly impact the reliability of the Bulk Electric System. Support tasks and personnel will be addressed after some additional studies are completed. We have left several functional entities checked in the SAR because we do not have the results of the JTA that will identify who is performing those real-time operating tasks that directly impact reliability. Also, the revised SAR and standard do not specify staffing levels, facilities, or funding requirements. We agree that the organization must determine these as it sees fit to develop its training program and ensure that it provides adequate time for training.

4. Do you believe there are any regional differences that should exist in the proposed standard?

Drafting Team General Response to Question 4:

Regional differences can be addressed by a standard that requires those differences to be a part of the local training program. Again, the Standard will establish the requirements for what is considered an acceptable training program in our industry. The type and format of training is then part of the process of designing training for a particular target audience on a particular level of competency on a particular level of organizational specificity.

Commenter	Yes	No	Comment	Response
Total	**3**	**16**		The drafting team generally agrees with these comments. As we explain in our responses to the three General Comments, every organization will need to determine its own training needs based on the tasks its personnel perform. The NERC standard does not preclude additional training required by the Regional Council, RTO or ISO, or the individual organization. Finally, this standard does not include certification requirements.
Anthony Giasi		**X**	No comments	
Guy Zito Kathleen Goodman Ralph Rufrano Greg Campoli Pete Lebro Roger Champagne Khaqan Khan Al Adamsom David Kiguel Robert Pelligrini David Little Brian Hogue Jerry Mosier		**X**	No comments	
James Stanton	**X**		ERCOT's system, for example, does not easily fit into the NERC proposed functional model and the training standard should recognize the unique regional differences found in the ERCOT Region.	
John Neagle		**X**	Given the limited detail in the SAR, Associated Electric Cooperative Inc. does not see a need for regional differences.	
Karl Bryan		**X**	In order for national certification to mean anything, there should be no region specific differences for earning certification.	This standard does not address NERC operator certification requirements.

Commenter	Yes	No	Comment	Response
Karl Tammar Dale McMaster Ed Riley Sam Jones Peter Henderson Peter Brandien Bill Phillips Bruce Balmat Charles Yeung		**X**	There will be site-to-site differences. There would be some regional differences in content and topics, but there should be no regional differences in general training requirements. Some of the NERC functional definitions need more details (who is the TO, IA, RA, etc.).	The drafting team generally agrees with these comments. As we explain in our responses to the three General Comments, every organization will need to determine its own training needs based on the tasks its personnel perform.
Kathleen Davis Jeff Newsome Rick King	**X**		From an overall framework, the standard should be the same however we must recognize the special needs and the special circumstance of individual regions. One size does not always fit all.	We agree. That is why the approach to the standard will be to require a systematic approach to training. The standard will be focused on following a valid process, but every organization will need to determine its own training needs based on the tasks its personnel perform.
Peter Henderson		**X**	There will be site-to-site differences. There would be some regional differences in content and topics, but there should be no regional differences in general training requirements. Some of the NERC functional definitions need more detail (who is the transmission operator, interchange authority, reliability authority, etc.).	We agree.
Theodore G. Pappas		**X**	No Comments	
Thomas Bradish		**X**	I believe that regional differences should be handled in the content and design of the entities training program.	We agree.
Alan Gale		**X**	Minimum standards should be minimum standards. If a region needs something beyond that, it should become a regional requirement.	We agree.
Mark Heimbach	**X**		My perspective is one of a Generator Operator, which operates in four different Reliability Councils (centralized dispatch generation control center with control of multiple generation assets in multiple regions). Each Council has unique differences that must be accommodated.	We agree. That is why the approach to the standard will be to require a systematic approach to training. The standard will be focused on following a valid process, but every organization will need to determine its own training needs based on the tasks its personnel perform.
Howard Rulf		**X**	No Comments	
Ken Goldsmith		**X**	No Comments	
Gerald Rheault		**X**	No Comments	

Commenter	Yes	No	Comment	Response
Richard Kafka Michael Maher William Mitchell David Thorne Vic Davis Val Hildebrand		**X**	No Comments	
William Smith		**X**	No Comments	
Michael Calimano		**X**	No Comments	
Raj Rana		**X**	However, some of the Regions and RTOs have separate training requirements for their members, which may or may not go beyond those proposed by this Standard. It is our belief that Regions and/or RTOs should be allowed to have more stringent requirements if they so choose, but should not be allowed or granted exceptions from this proposed NERC Standard if they desire weaker requirements. Further, we encourage the Regions and RTOs that have additional training requirements, to structure their requirements such that credit hours counted towards meeting their requirements could also count toward meeting the proposed NERC Standard requirements. However, we would be opposed to diluting the proposed NERC Standard in order to meet a Region's or RTO's lesser requirements. To clarify by example, if the proposed NERC Standard required 32 hours of emergency training and a Region or RTO required their members to have 50 hours of emergency training, we would want the Region and RTO to structure their requirements such that once completing the Region/RTO's 50 hours of emergency training, that 32 hours of that training also met the requirements of the proposed NERC Standard regarding emergency training. That is, the method of determining what is required in order to officially count an hour as a credit towards meeting the Region/RTO requirement needs to be at least as strict as the NERC requirement for what counts as an hour of training.	We agree. All types of training will need to follow the proposed standard process and meet the same requirements. Regional specific or company specific training requirements should be developed as per the standard and would thus meet both requirements simultaneously

5. Do you believe it is practical to implement the proposed standard with the existing staffing levels?

Drafting Team General Response to Question 5

This question was designed to garner the opinions of the respondents based on 1.) their current staffing levels, 2.) their understanding of the SAR, and 3.) their estimate of how many personnel they would need to add.

The drafting team does not intend to take issue with any of these opinions. Indeed, the actual requirements for both operating and training staff will depend on many factors, most notably the number and types of tasks that the operating personnel perform. Organizations will need to conduct some type of job and task analysis to identify those tasks (or use the one completed by the Personnel Subcommittee and included in the Training Standard, followed by a training needs assessment), and only then will they know what kind of staff, and how many are needed.

The training standard will not define staffing levels. Rather, it will define a training process that you would use to determine what staffing levels are required to support good training practices. If a well-defined process of developing training is used, as intended by this standard, each organization would use a systematic process to determine what training is needed, how it should be delivered, and what staff levels may be required to support training adequately.

With regard to justifying any additional resources your organization might need to conduct effective training, if your organization currently provides valid training that is needed to perform the jobs that may impact the reliability of the bulk electrical system, and can demonstrate that, then you would probably meet the proposed standard. If, however, you are not providing training for your system operators then the fact that you have not experienced a blackout to date is not a reliable indicator that your personnel are adequately trained.

The drafting team intends this general response to apply to all of the comments that follow. In most cases we have nothing more to add, and so we've left the response blank rather than just copy the same text repeatedly. We did respond to some comments for which this general response does not apply.

Commenter	Yes	No	Comment	Response
Total	3	14		

Commenter	Yes	No	Comment	Response
Anthony Giasi			A reasonable standard is needed, however, additional training personnel, training infrastructure, training documentation, training funding, etc would be required to train all "system personnel" as indicated in the SAR.	The revised SAR and standard do not specify staffing levels, facilities, or funding requirements. We agree that the organization must determine these as it sees fit to develop its training program and ensure that it provides adequate time for training. Also, the revised SAR does limit its scope to those system operators performing real-time tasks that directly impact the reliability of the Bulk Electric System. Support tasks and personnel will be addressed after some additional studies are completed.
Guy Zito Kathleen Goodman Ralph Rufrano Greg Campoli Pete Lebro Roger Champagne Khaqan Khan Al Adamsom David Kiguel Robert Pelligrini David Little Brian Hogue Jerry Mosier			Administrative duties related to audit. Additional Operating Room personnel due to out of control room activities.	The revised SAR and standard do not specify staffing levels, facilities, or funding requirements.
James Stanton			It might be doable if as many control areas as possible were consolidated, which would mean fewer people to train. If existing control areas continue to exist in their current number, then no, a training standard could not be implemented at current staffing levels.	
John Neagle			Associated Electric Cooperative Inc. responds to this question with a qualified no. As stated above, the SAR does not contain sufficient detail to positively determine required staffing. If the standard developed from this SAR is applicable to all the entities indicated on Page SAR-2, a 15 - 20% staff increase in affected areas could conceivably be necessary for Associated Electric Cooperative Inc. to comply. It is unlikely Associated's customers would appreciate or understand rate increases to fund such a training program that would do nothing to decrease the number of blackouts they have experienced (0).	The revised SAR and standard do not specify staffing levels, facilities, or funding requirements. We agree that the organization must determine these as it sees fit to develop its training program and ensure that it provides adequate time for training. Also, the revised SAR does limit its applicability to those system operators performing real-time tasks that directly impact the reliability of the Bulk Electric System. Support tasks and personnel will be addressed after some additional studies are completed.

Commenter	Yes	No	Comment	Response
Karl Bryan			It takes manpower off of the workbench in order to go through a certification training process. I would suspect that there will be some staff that require more remedial training than others. With the present shortage of staff at most facilities, it will be difficult to accomplish all of the required training in a timely manner without increasing staffing.	
Karl Tammar Dale McMaster Ed Riley Sam Jones Peter Henderson Peter Brandien Bill Phillips Bruce Balmat Charles Yeung			Each location would have different requirements. In general, there would likely be an additional person needed for every 5-10 people subject to this standard (to maintain the program, coordination training and provide relief for workers to participate in training, etc.). In addition, each organization subject to this standard would need a person for each occupation (for perhaps a year) to develop the program and get it started. A simulator requirement would add workload (setup, maintenance and running scenarios).	
Kathleen Davis Jeff Newsome Rick King			When you consider the additional training requirements that will probably come out of the standard I foresee a need for additional staffing in both the system personnel side of the business and on the training side of the business. We need an industry standard for staffing levels that applies across the board for the functional responsibility. It would be prudent to develop a training standard that stipulates the minimum requirements to satisfy training for system personnel, versus taking the approach to identify the best approach. This will minimize the impact on the staffing levels for both training and staff personnel.	
Peter Henderson			Each organization would have different requirements. In general, there would likely be additional staff required in many of the organizations to meet this standard (to maintain the program, to coordinate training, and to provide relief for staff to participate in training, etc.) In addition, each organization, subject to this standard, would incur start-up costs associated with developing the process. A simulator requirement would add workload (setup, maintenance and running scenarios), etc. The extent of increased resources cannot be determined until the details of the standard are available.	

Commenter	Yes	No	Comment	Response
Theodore G. Pappas			The response depends on the final product. If it is a very formal and rigid plan, similar to the nuclear industry, additional staff will be required.	
Thomas Bradish			My guess is that it will increase our staffing requirement in order to send dispatchers to training. It will certainly mean additional record keeping.	
Alan Gale			We anticipate that at least 2 additional "trainers" will be needed. In addition to the additional work load to support the training, and the research, and the administration required to become a NERC Certified CEH provider, the qualifications of these personnel is not yet known. There is no clarification as to what "competent in both knowledge of the subject and instructional capabilities" really means. These words seem to lead to the conclusion that we will have to hire outside agencies of ex-utility workers that have become trainers. Additional System Operators will be needed to adequately support the targeted hours and still be able to cover minimum vacation and sick time. Additional trainers and Operators will be needed each year to satisfy Item 6 "Staffing level adequacy needed to improve the quality and quantity of training." This statement also seems to go beyond the goal of setting minimum standards. It also goes beyond the Purpose/Industry need of "adequate". We will need more and more every year.	
Mark Heimbach			I have no training staff so it would be impossible to design/implement formal training just for my group without additional staffing/expenditures. However, we do participate in all "pool wide" system operator training that is offered in MAAC and MAIN (via PJM) and applicable to Generation Operators. This is the type of training I would depend on to meet the requirements.	
Howard Rulf			No comments	
Ken Goldsmith			I believe it will require more personnel dedicated for the training function alone, which may be difficult for the smaller organizations.	

Commenter	Yes	No	Comment	Response
Gerald Rheault			Manitoba Hydro foresees requiring at least 2 additional staff; one administrative representative to help maintain the documentation and for record keeping and at least one instructional designer to create/revise the training courses. This is an estimate only and is based on a control centre perspective only. The total impact on Manitoba Hydro may be more extensive depending on the finalized training requirements and what options exist to develop and target the requisite training. Program planning and training development is both time and staff intensive. Manitoba Hydro currently has difficulty maintaining its trainee program and ongoing staff training with the existing staff. Additional staff will be required to implement any new requirements to the existing training program.	
Richard Kafka Michael Maher William Mitchell David Thorne Vic Davis Val Hildebrand			At a minimum, we would need additional training personnel. It is also possible that training requirements would be so great as to require additional operating personnel	
William Smith			Staffing levels cannot be predicted until the requirements are specified. If this proposed standard mandates the hours required, this question can't be answered until we know the required hours.	

Commenter	Yes	No	Comment	Response
Michael Calimano			In the case of most organizations there will be a substantial operating staff increase required to provide operators with sufficient training time (6 crew shift rotations in place of 4 and 5 crew shift rotations). There will be an almost universal need to create or increase the size of training staffs to conduct continual Job Task Analysis, develop training modules for all tasks, continually validate and verify of individual training modules, and maintain of the "learning management system" (training plans/training schedules/progress assessment/documentation/records retention - all on an individual basis). This standard is being created to rectify the absence of existing staff levels sufficient to meet the in the training needs of system operators. If there were sufficient staffing, there would not be need for this standard. Operating or training staffing levels should be dictated as part of the standard. The individual entity should have the flexibility to determine the most effective mechanism to meet their particular training needs. Face-to-face training options require different staffing levels than a full e-learning approach.	

6. How and how often should training programs be reviewed for compliance with the standard?

Drafting Team Response to Question 6:

The industry recognized the need for auditing. Although the response is not unanimous, it does indicate a majority opinion with which the Drafting Team agrees. We have an existing compliance program that should be used to audit compliance with this standard just as we do with other NERC standards.

Commenter	Yes	No	Comment	Response
Total				
Anthony Giasi			Bi-annual basis.	
Guy Zito Kathleen Goodman Ralph Rufrano Greg Campoli Pete Lebro Roger Champagne Khaqan Khan Al Adamsom David Kiguel Robert Pelligrini David Little Brian Hogue Jerry Mosier			NPCC believes the training programs should be reviewed internally and self certified for compliance as required or at least yearly, with audits being conducted at least once every three years.	
James Stanton			The training program should be reviewed often enough to insure it remains aligned with current markets /regional design and adjust, if needed, to capture future market and reliability training needs.	
John Neagle			Associated Electric Cooperative Inc. suggests an annual self-certification to the appropriate Regional Reliability Council.	
Karl Bryan			The training programs should be accredited in the same manner and frequency as utilized in higher education. Nationally recognized auditing and once every 4 or 5 year recertification.	
Karl Tammar Dale McMaster Ed Riley			Every 3-5 years as part of normal compliance review. The organization's ability to meet the other NERC standards is a measure of the success of their	

Commenter	Yes	No	Comment	Response
Sam Jones Peter Henderson Peter Brandien Bill Phillips Bruce Balmat Charles Yeung			training program.	
Kathleen Davis Jeff Newsome Rick King			A mandatory compliance type review should be conducted every 4 years. This approach is consistent with similar utility training requirements. Each utility/entity should conduct self assessments on a more frequent time frame. This approach will minimize the impact on NERC and the industry when trying to audit training for compliance.	
Peter Henderson			The training programs should be reviewed internally and self certified for compliance as required or at least yearly, with audits being conducted at least once every three years.	
Theodore G. Pappas			The program should be self certified for compliance with audits on a biannual basis.	
Thomas Bradish			Can this reporting be handled similar to the CEU tracking for NERC certification? It will have to be tracked annually since most of the requirements will be annual requirements.	
Alan Gale			Reviews should be consistent with other standards.	
Mark Heimbach			Every five years.	
Howard Rulf			Every three years.	
Ken Goldsmith			No Comment	
Gerald Rheault			Each entity training program should be reviewed as part of the entity operational audit which is presently part of the NERC Compliance program. In the MAPP /MRO region this presently occurs every three years. Any program which was judged satisfactory at the last operational audit should not deteriorate to such a degree that the system is a threat to reliability in any three year window.	

Commenter	Yes	No	Comment	Response
Richard Kafka Michael Maher William Mitchell David Thorne Vic Davis Val Hildebrand			Self report via comprehensive questionnaire annually or every two years. Training audit team visit every 5 years.	
William Smith			Training Programs should be reviewed annually by the responsible staff. Entities should be required to Self-Certify annually. Every two to three years, the entity should undergo an on-site audit.	
Michael Calimano			Full training audit compliance should be included in the normal sequence of NERC functional organization audits. Compliance should be phased in due to the magnitude of the staffing and program development needs.	
Raj Rana			It should be similar to policies today. Specifically, annual self-certification and then as part of onsite audits every three years.	

7. Please enter any additional comments you have regarding the proposed SAR.

Drafting team response to Question 7:

The current NERC Continuing Education (CE) program is just one model that can be used to qualify good training activities. It is not the intent of this standard that all training must be NERC CE-approved training.

The intent of this standard is not to develop a "one-size fits all" program.

However, the standard should address a generic process that fits various functional entities. We, as an industry, have nothing in place to say that it is critical to train personnel that operate the bulk electrical system by defining what valid training is. This standard must establish a baseline for training validity. We have seen repeatedly that when we, as an industry do not train; we do have operating failures that impact our constituency. Entities that are doing valid training will likely not be impacted significantly by the standard. However, we as an industry have repeatedly taken the stand that we can and should regulate ourselves. If we do not have standards for valid training, we have not regulated ourselves.

The results of the system operator training study being conducted by NERC may well determine more specific requirements for system operating personnel.

Commenter	Yes	No	Comment	Response
Total				
Anthony Giasi			Match the definitions on the SAR with the definitions in the Glossary posted with Version 0. The standard needs to be written so the rules are objective, clear and well-understood by all end-users as well as auditors; Need to define what is meant by 'system personnel'; Need to define terms used such as 'job task analysis' and 'competency-based'.	Terms unique to the process will be defined in the standard.
Guy Zito Kathleen Goodman Ralph Rufrano Greg Campoli Pete Lebro Roger Champagne Khaqan Khan Al Adamsom David Kiguel Robert Pelligrini David Little Brian Hogue Jerry Mosier			No Comments	

James Stanton			The statement, Any person with access to a control room should be trained, from the blackout report, should be clarified. What kind of control room? Is this a control area? An RTO control room? A power plant control room? Also, there are essential pieces missing from the proposal, such as what are the goals of the training program? It is quite exhaustive in the elements of a training program but fails to explain what objectives are to be met. Beyond the broad goal of promoting the reliability of the Interconnections, what subject matter is envisioned to fall into the recommended elements that would be applicable to all the Reliability Functions to which it is intended to apply? A good example is simulator training. Simulator training on what? The current proposal is so overly broad as to be unworkable. More explanation of the goals of the training program and the applicability to the Reliability Functions must be presented. This is too important a subject to apply the broad brush of a one-size-fits-all Training Standard.	Please refer to our Responses to General Comments above. In regard to "any person with access to a control room", the revised SAR does limit its applicability to those system operators performing real-time tasks that directly impact the reliability of the Bulk Electric System. Support tasks and personnel will be addressed after an additional study is completed.
John Neagle			Associated Electric Cooperative Inc. reiterates its comments above that a training standard should address the desired outcomes and should not detail the methods to achieve those outcomes. Prescriptive requirements for facilities, tools, materials, funding, staffing levels, methods, etc. should not be included. These details are best determined by and should be left to the discretion of the individual company. Associated Electric Cooperative Inc. respectfully requests the Standards Drafting Team fully and carefully consider the industry's comments submitted in response to publication of the System Operator Certification Program Administrative Guidelines. Special attention should be given to the comments regarding the number of training hours (CEH) required.	It appears that the Drafting Team did not provide sufficient explanation with the initial SAR about the approach it was taking to writing the standard. The revised SAR includes considerably more explanation. Also, the revised SAR includes many changes in response to comments. We ask the respondent to review the revised SAR and comment, hoping that the revisions and additional explanation about our approach will satisfy some of the respondents concerns.
Karl Bryan			No comments	
Karl Tammar Dale McMaster Ed Riley Sam Jones Peter Henderson			Again, the one-size-fits-all approach does not appear to be justified. If an operator or authority does not need to be certified, their training requirements should be less. Continuing education with some focus on recommended topics that could be tailored locally would be valuable and would relieve	We agree. That is why the approach to the standard will be to require a systematic approach to training. The standard will be focused on following a valid process, but every organization will need to determine its own training needs based on the tasks its personnel perform.

Peter Brandien Bill Phillips Bruce Balmat Charles Yeung			much of the administrative burden. It might be better if this standard applied (for now) only to those entities that must be certified. Training of everyone is important and necessary, but consider the administration if NERC required that each RRC check every generator operator and purchasing selling entity training records versus this standard. If the industry agrees that Generator Operators and others need to be certified then apply the standard. Again, training programs are probably better evaluated locally. A continuing education requirement with some in a set of approved topics may be more appropriate for non-certified entities.	This standard does not address NERC operator certification requirements.
Kathleen Davis Jeff Newsome Rick King			No comments	
Peter Henderson			Again, the "one-size-fits-all" approach does not appear to be justified. If an operator or authority does not need to be certified, their training requirements should be reduced. A continuing education with some focus on recommended topics (that could be tailored locally) would be more appropriate and would relieve much of the administrative burden for non-certified entities. It might be better if this standard applies (for now) only to those entities that must be certified.	We agree. That is why the approach to the standard will be to require a systematic approach to training. The standard will be focused on following a valid process, but every organization will need to determine its own training needs based on the tasks its personnel perform.
Theodore G. Pappas			No Comments	
Thomas Bradish			No Comments	
Alan Gale			5a. "support staff" needs to be clarified. If the position does not need to be certified, why do they need to fall under this requirement. Are we saying that the training requirements of their respective professional certification (i.e. PE) is inadequate? The same can be said of "management". 8a. Why does a companies training plan have to adhere to the CE program? There is no discussion here of how to maintain certification. In fact it is patently obvious that it was intentionally avoided. Is the goal of this to have quality training or further the CE programs viability? Why can't all the training requirements be in	The revised SAR does limit its applicability to those system operators performing real-time tasks that directly impact the reliability of the Bulk Electric System. Support tasks and personnel will be addressed after some additional studies are completed. The scope of training is much broader than the NERC continuing education. The Continuing Education (CE) Program was set up to provide a method for certified system operators to maintain their NERC certification by receiving training that applies to their job more than the current method for recertifying, which is to re-take the same exam they took 5 years ago. The NERC Board of Trustees wanted the CE Program to be an established

			one place? 8b. Approval and revocation processes for what? Being a CEH provider or certifying my training program? Compliance monitoring should be sufficient. Why is a separate process needed? The CEH process already contains a system for approval and revocation, it's duplication here will increase administrative work load unnecessarily.	and proven program before tying it to recertification. The Personnel Certification and Governance Committee (responsible for the integrity of the system operator certificate) is in the process of initiating recertification through continuing education. That is outside the proposed training standard, although the training standard must be sufficiently comprehensive to provide for it. Training must go beyond certification in providing a protocol that ensures that system operators receive the training they need for their specific job.
Mark Heimbach			Some random thoughts: Although we do operate in several Reliability Councils and I admit there are clearly regional differences, the minimum standard should be global so I don't have to meet different minimum standards. The training should be web/computer based so it is available during back shifts. The training needs to be geared towards the responsibilities. For example, the minimum level for Generator Operators need not be at the same level as that of Reliability Coordinators. The costs should be spread across all market participants because the entire market benefits from reliability..	We agree. That is why the approach to the standard will be to require a systematic approach to training. The standard will be focused on following a valid process, but every organization will need to determine its own training needs based on the tasks its personnel perform.
Howard Rulf			All training should not be required to be in the NERC CEH program.	It will not be in the training standard.
Ken Goldsmith			Somewhere the standard should encourage/recommend that the Regions should form Training Groups to promote uniform training throughout the regions. This will help promote a better understanding of operations, by all the parties.	The Drafting team agrees with the business sense of this suggestion, but resource utilization is outside the scope of the training standard.
Gerald Rheault			No comments	
Richard Kafka Michael Maher William Mitchell David Thorne Vic Davis Val Hildebrand			No comments	
William Smith			No Comments	
Michael Calimano			No Comments	

Raj Rana			No Comments	

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Standard Authorization Request Form

Title of Proposed Standard	System Personnel Training Requirements
Request Date	2/8/2006

SAR Requestor Information		**SAR Type** (Put an 'x' in front of one of these selections)	
Name	NERC Personnel Subcommittee	☒	New Standard
Primary Contact	Earl Cass, Chair NERC PS	☐	Revision to existing Standard
Telephone	605-882-7550	☐	Withdrawal of existing Standard
Fax	605-882-7453		
E-mail	cass@wapa.gov	☐	Urgent Action

Purpose/Industry Need (Provide one or two sentences)

A training standard is required to set the minimum acceptable requirements for the development, implementation and maintenance of initial and continuing System Personnel Training programs.

This standard is needed to help insure that System Personnel performing operating tasks in real time are provided with an adequate amount of training in order to promote the Reliability and Adequacy of the North American Interconnections and their bulk electrical systems.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies by double clicking the grey boxes.)*		
☒	Reliability Authority	Ensures the reliability of the bulk transmission system within its Reliability Authority area. This is the highest reliability authority.
☒	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within its metered boundary and supports system frequency in real time
☒	Interchange Authority	Authorizes valid and balanced Interchange Schedules
☒	Planning Authority	Plans the bulk electric system
☐	Resource Planner	Develops a long-term (>1year) plan for the resource adequacy of specific loads within a Planning Authority area.
☐	Transmission Planner	Develops a long-term (>1 year) plan for the reliability of transmission systems within its portion of the Planning Authority area.
☒	Transmission Service Provider	Provides transmission services to qualified market participants under applicable transmission service agreements
☐	Transmission Owner	Owns transmission facilities
☒	Transmission Operator	Operates and maintains the transmission facilities, and executes switching orders
☐	Distribution Provider	Provides and operates the “wires” between the transmission system and the customer
☐	Generator Owner	Owns and maintains generation unit(s)
☒	Generator Operator	Operates generation unit(s) and performs the functions of supplying energy and Interconnected Operations Services
☒	Purchasing-Selling Entity	The function of purchasing or selling energy, capacity and all necessary Interconnected Operations Services as required
☒	Market Operator	Integrates energy, capacity, balancing, and transmission resources to achieve an economic, reliability-constrained dispatch.
☒	Load-Serving Entity	Secures energy and transmission (and related generation services) to serve the end user

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check boxes for all that apply by double clicking the grey boxes.)*	
☒	1. Interconnected bulk electric systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☒	2. The frequency and voltage of interconnected bulk electric systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☒	3. Information necessary for the planning and operation of interconnected bulk electric systems shall be made available to those entities responsible for planning and operating the systems reliably.
☒	4. Plans for emergency operation and system restoration of interconnected bulk electric systems shall be developed, coordinated, maintained and implemented.
☒	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk electric systems.
☒	6. Personnel responsible for planning and operating interconnected bulk electric systems shall be trained, qualified and have the responsibility and authority to implement actions.
☒	7. The security of the interconnected bulk electric systems shall be assessed, monitored and maintained on a wide area basis.

Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box by double clicking the grey area.)*
1. The planning and operation of bulk electric systems shall recognize that reliability is an essential requirement of a robust North American economy. Yes
2. An Organization Standard shall not give any market participant an unfair competitive advantage.Yes
3. An Organization Standard shall neither mandate nor prohibit any specific market structure. Yes
4. An Organization Standard shall not preclude market solutions to achieving compliance with that Standard. Yes
5. An Organization Standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes

Detailed Description (Provide enough detail so that an independent entity familiar with the industry could draft, modify, or withdraw a Standard based on this description.)

Introduction

The public comments to the latest standards authorization request for the NERC Training Standard revealed that the SAR did not explain adequately the intent of the proposed training standard nor the concepts upon which that standard would be based. This response provides more detail, and includes a SAR revision that should provide greater comfort to those who identified key issues with the first draft.

The SAR drafting team noted three common concerns among these comments, specifically that the standard would:

1. Unduly prescribe the details for training programs,
2. Cover too broad a range of operating personnel, and
3. Require a "one size fits all" approach to training

The comments also indicated some confusion surrounding the separation and interdependencies of training, personnel certification, organization certification and continuing education, which we will clear up as well.

This latest response to the public comments is divided into four sections:

1. General explanation of the concepts of the standard,
2. What the standard ***does not*** cover,
3. Responses to the three common concerns listed above, and
4. Responses to all other comments.

In response to comments received on the first SAR for a training standard, the SAR drafting team has determined that:

1. More explanation is needed to the industry regarding the approach planned to write a training standard.

2. The scope of the initial training standard should be limited to the initial training of new staff and the continuing education of existing staff performing operating tasks in real-time that directly impact the reliability of the Bulk Electric System (BES). The Personnel Subcommittee (PS) is in the process of conducting an Operating Tasks Analysis. Operating tasks that impact reliability are already known, but the Operating Task Analysis will identify who performs those tasks, and thereby clarify the target audience for the initial Training Standard.

3. The initial training standard will not cover operations support

personnel because we will not have adequate data to include those tasks performed by support personnel that can directly impact reliability. After completion of the Real-Time Operations Task Analysis the Personnel Subcommittee will conduct an Operations Support Task Analysis to determine who and which tasks performed can directly impact reliability. The initial training standard need not be delayed for the second round of tasks analysis to identify support tasks, and is targeted for completion by mid-May, 2006.

4. In the section on page SAR-2 above titled Reliability Functions, the drafting team has checked several functional entities that may or may not end up being covered by the standard. The Personnel Subcommittee is conducting a Task Analysis to determine those tasks performed by operating personnel in real time that directly impact reliability. The results of that study will shed further light on the functional model entities that might be covered by this standard. However, that study will not, and cannot be all inclusive, so there will still be some responsibility on organizations to recognize real time operating tasks their personnel perform that directly impact reliability that may not be on the list from the study. The Functional Model entities is not a perfect system for identifying tasks that impact reliability, and the drafting team has therefore decided to use a task-based approach to identifying who directly impacts real-time reliability. The drafting team does not and cannot know the Functional Model entities to which this standard will apply because the Functional Model is the wrong thing to use to identify tasks that directly impact real time reliability.

5. The target for completion of this second round of tasks analysis will be mid summer, 2006, with amendment of the Training Standard to be done in fall-winter 2006 to include persons performing support tasks that directly impact reliability

This approach accomplishes several objectives that have been expressed as concerns by the industry.

1. It puts a training standard in place for the highest priority personnel – those that directly operate the BES - in 2006.
2. It bases the training standard on tasks known to directly impact the reliability of the BES using Task Analysis data that has been gathered by a proven and widely accepted approach.
3. It supplies the industry with tasks analysis data that will serve as a foundation for performance requirements required to determine competency gaps. This is of particular benefit for the smaller entities that may not be able to afford a full Job Task Analysis. The PS and Standard Drafting Team are conducting one for them. Some additional amount of assessment will be required by specific entities to determine the training their employees in particular need, but the brunt of the more costly needs assessment process of a Job Task Analysis will have been done for

the industry for the tasks of highest priority to reliability, with a commitment to immediately follow-up with other studies to address support tasks in a legitimate way.

4. It establishes a systematic approach to training as the norm for the industry. This is critical to achieve measurable results from training, and at the same time provides the most flexibility for the industry to determine training needs for their specific jobs. Training results must be measured as required competency. Required competency cannot be measured without taking a systematic approach to developing training, which includes determining the competency required by tasks and the existing competency of employees. It is the elimination of the gap between competency required and existing competency that is the goal of training, and is what can and must be measured to validate that competency has been achieved through training. Specifying a number of training hours does not guarantee that competency will be achieved. Competency-based training is the most critical requirement of any legitimate training program, and this approach to a training standard ensures that the process required to deliver competency will be followed.

The Concepts of the Training Standard

The goal of operator training is to develop *competency*, which is "the ability to do something well or to a required standard."[1] Competent system operators understand the tasks they are expected to perform and how to do those tasks. They also understand the reliability standards to which they and their organizations are held accountable. The organization, in turn, must design and implement its training program to ensure this competency. The proposed NERC training standard includes the requirements for these training programs.

While training on its own won't ensure competency, it is a necessary ingredient for developing system operators who are competent—at what they do. System operators gain expertise through on-the-job training structured and executed according to this standard. However, on the job training not structured and executed in accordance with a systematic approach to training is seldom complete enough to ensure that system operators understand *why* their actions produce certain outcomes. Furthermore, unstructured training does not ensure that system operators will be able to deal with novel situations or simultaneous events they have never experienced. The failure to recognize that "the perfect storm" was brewing was one of the root causes of the August 2003 blackout and the subsequent requirement that all system operators receive at least five days of training annually in emergency operations.

Approach to Developing A Training Standard

[1] Source: Encarta Dictionary

The approach of the revised SAR for a training standard is to be flexible to the industry in determining their unique training needs and not try to force a single set of training topics on a widely diversified audience. To provide for flexibility is not a compromise on quality of training. Quite the opposite. Quality training results from applying a systematic approach to training that includes training needs assessment, training development, delivery, and evaluation. Using this process, an organization can identify training needs and deliver quality training that eliminates competency gaps. Not using this fundamental process for training, or leaving out any step in the process, will not produce training that can validate competency required for job performance.

The primary purpose of training is to produce competency where a gap exists between ability (or performance required for the job) and the existing competency of a person performing that job. A systematic approach to training starts by determining performance requirements. You must know what performance is required before you can say the capability to perform exists or not. Determining performance requirements simply means knowing what a person is supposed to be able to do, and is only the first step in determining and delivering training that produces needed competency. Once you know what is supposed to be done and how well (performance requirements), you must then determine the existing level of competency of personnel performing those tasks. The process for determining the difference between required competency and existing competency, which is a competency gap, is termed training needs assessment.

Valid training is the result of a systematic approach to identify performance deficiencies and correcting the lack of ability to perform with valid training. Training, when done using a systematic approach, cannot guarantee competency, or the ability to perform. However, training, without attention to other performance factors such as tools, procedures, etc. required to do a job cannot make performance happen.

The approach to a training standard could be to select a list of topics that must be covered and a specific number of hours per year of training. That approach would not guarantee competency. Learning might occur, but whether or not the right learning occurred (leaning required to perform tasks) would be unknown without a method for validating learning. That is the principle of the systematic approach to training – training is a process that, without each of its critical elements, cannot guarantee competency. Without competency performance will not occur as desired.

To expand on the approach being proposed by the revised SAR, the approach will be based on the fact that developing and maintaining an effective training program involves a number of steps:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
2. **Designing and adjusting the training program** to make sure it

directly correlates performance requirements, learning objectives, and learning evaluation to tasks. The training program must be designed to bring the system operators from their current level of competency to the organization's desired level of competency.

3. **Developing the training program** so that it includes effective learning experiences and delivery methods. The approach to this step, as well as step 2, will drive the requirements for training and operating staffs.
4. **Delivering the training to the personnel**; in other words, ensure that the training actually takes place as designed.
5. **Verifying and documenting the competency** that the personnel achieved through a documented assessment process

When all of these steps are correctly applied, training will be able to validate competency. The omission of any step means that the training cannot guarantee the desired competency. The training standard includes all five of these steps, and measures compliance by requiring documentation that these steps were performed. If the process is followed credible training will result. If the process is not followed, the needed learning may not occur.

Requirements the Training Standard Does Not Include

Does not specify the number of hours of training the organization must deliver, with one exception: that every system operator must receive at least 32 hours of training in emergency operations. This training was specifically required in NERC's original recommendations following its initial investigations into the August 2003 blackout and the drafting team agrees it must be in the training standard until data substantiates another number.

Does not specify who must be trained. That's the purpose of the job and task analysis. The Personnel Subcommittee (PS) is conducting a job and task analysis to provide the industry with a solid base of tasks that impact reliability. (See text box at bottom on Determining Tasks.)

Does not list the training subjects that must be taught. The subjects must be germane to the tasks that the system operators perform, and these are revealed through the job and task analysis. Even though the PS is supplying the majority of operator tasks that directly impact reliability, the list is neither complete nor does it list specific training subjects for an organization. A needs assessment must still be conducted by each organization to determine the training needs of their personnel.

Does not require operator certification or specify who must be certified. NERC certification of personnel is not covered by this standard.

Does not specify how many hours of NERC continuing education a system operator must have for renewal of a NERC certificate.

Does not require a specific number of training staff. The number of

qualified training staff is a function of training needed to maintain qualified operating personnel, which must be determined by each organization. Staffing with qualified personnel to operate is a responsibility of each organization impacting the reliability of the BES.

Does not require an operator training simulator, though it does require simulation training as part of the training in emergency operations, the standard must certainly encompass training using simulators

Does not accredit training programs. If the systematic approach to training is followed, training programs will be credible and produce the desired competency.

Determining tasks

The proposed training standard will require every organization to determine the tasks that its operating personnel perform. This is accomplished through a task analysis or a job and task analysis (JTA). Organizations with long-established training programs conduct JTAs whenever needed to ensure their training programs include the proper content. But most organizations, especially those who do not have their own training programs, probably don't perform JTAs.

The proposed standard does not require the organization to perform a formal JTA. It does require the organization to explain how it identified the tasks for which its training program was designed.

To help the industry identify these critical operating tasks, the NERC Personnel Subcommittee is conducting three studies. The first study determined the competencies of excellent operators. The second will identify the tasks done by operating personnel that directly impact reliability. The third will identify tasks performed by support personnel that directly impact reliability. The results of the first two studies will be factored into the initial training standard. In late 2006, the study of support personnel tasks will be included in a revision to the training standard. Organizations may use this "generic" JTA to identify those operating personnel who must be included in their training program, but they must conduct a training needs assessment to determine the specific training needs of their personnel.

Related Standards

Standard No.	Explanation
	None

Related SARs

SAR ID	Explanation These Organization Certification standards are not yet approved
Draft BA_CERTIFICATION_01_03	Certification of the Balancing Authority function includes requirements for staffing with NERC-certified system operators. The proposed standard should set a required minimum training program for these certified system operators.
Draft	Certification of the Interchange Authority function includes

IA_CERTIFICATION_01_02	requirements for staffing with NERC-certified system operators. The proposed standard should set a required minimum training program for these certified system operators.
Draft RA_CERTIFICATION_01_02	Certification of the Reliability Authority function includes requirements for staffing with NERC-certified system operators. The proposed standard should set a required minimum training program for these certified system operators.
Draft TOP_CERTIFICATION_01_02	Certification of the transmission Operator Authority function includes requirements for staffing with NERC-certified system operators. The proposed standard should set a required minimum training program for these certified system operators.

Regional Differences

Region	Explanation
ECAR	
ERCOT	
FRCC	
MRO	
NPCC	
RFC	
SERC	
SPP	
WECC	

Related NERC Reliability Standards or Planning Standards

ID	
PER-001-0	Operating Personnel Responsibility and Authority
PER-002-0	Operating Personnel Training
PER-003-0	Operating Personnel Credentials
PER-004-0	Reliability Coordination Staffing
1200	Urgent Action Standard - Cyber Security - 1211 Training

Proposed Training Standard Development Timeline

Feb 9 – Send updated SAR, timeline, and response to comments to SAC and NERC staff for posting and to SAC along with brochure

Feb 14 – Conference call with SAC to discuss the updated SAR, response to comments, and standard and ask for approval for the SAR drafting team to move forward as a standard drafting team
– Ask SAC to post updated SAR and response to comments

Feb 14 – March 16
- PS Members disperse brochures to their industry contacts
- Promote and educate managers or those in voting/commenting positions
- Use speakers notes/presentation

By end of February – Piloting test JTA instrument

March 15& 16 – John Taylor/Geoff Elmer present proposed standard to the OC to promote management support and ask for support for proctored workshops

April 11 –
- Group responds to industry comments on SAR after 30 day posting
- Send SAR response to comments to SAC and post
- Request SAC permission to post standard without completed task list
- Send draft standard to SAC for public posting and first round of comments 45 day comment period

April 17–28 – Proctored JTA Workshop East

May – Comments on draft standard gathered and responses compiled

May 30–June 9 – Proctored JTA Workshop Central

June 5–9 – Proctored JTA Workshop West

June 13 – Start designing survey instrument to gather info on operations support staff in the industry
– Data gathered from initial JTA workshops and analyzed

August PS – Respond to comments on training standard draft posting and adjustments made to draft standard and JTA attachment included
–build timetable for proctored workshops in the 4th quarter of 2006
– Submit second draft for second posting and comments

October PS – Respond to comments on second draft posting and submit to SAC with recommendation for balloting
- Complete voting by end of December 2006
- Continue work on SAR for support staff and JTA plans

November – Proctored JTA workshops for support staff

December – Respond to negative votes with comments if the standard does not pass first time. Post for second ballot

Comment Form
Proposed System Personnel Training Standard

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ALL DATA ON THIS FORM WILL BE TRANSFERRED AUTOMATICALLY TO A DATABASE.

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Do not submit a response in an unprotected copy of this form.

Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:	Walter Cintron	
Organization:	Con Edison of NY	
Telephone:	212 5808684	
E-mail:	cintronw@coned.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **ECAR**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **FRCC**	☐	3 — Load-serving Entities
☐ **MRO**	☐	4 — Transmission-dependent Utilities
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☐ **RFC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SERC**	☐	7 — Large Electricity End Users
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☐ **NA – Not Applicable**		

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

* If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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The requestor would like to gauge the level of consensus regarding the revised SAR and to obtain the input of the industry on the scope and applicability of the proposed standards. Accordingly, your comments included on this form, e-mailed with the subject "System Personnel Training SAR Comments" by March 20, 2006, would be appreciated.

Regarding the scope of the SAR:

The SAR Drafting Team is proposing that this SAR will result in two standards:

- One standard will require training all personnel who perform 'real-time operating tasks' that directly impact the reliability of the Bulk Electric System (BES)
- One standard will require training personnel who perform 'support tasks' that directly impact reliability of the BES.

The SAR Drafting Team wants to develop the standard for the personnel who perform 'real-time operating tasks' first, then develop the standard for personnel who perform 'support tasks'.

1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☐ Yes

☒ No

Comments

where is this information?

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☐ Yes

☒ No

Comments

the information should be provided in order to make an assessment.

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
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4. **Delivering the training to the personnel**; in other words, ensure that the training actually takes place as designed.
5. **Verifying and documenting the competency** that the personnel achieved through a documented assessment process

4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☐ Yes

☒ No

Comments

Not in the form of the rejected SAR Draft.1.0 323825

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☐ No

Comments

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments
The Draft SAR 1.0 323825 is missing sections R9,10,11,12,13 and 14.
I think that this initial SAR should limit itself to those performing operating tasks in a real time or day ahead time frame.
As is the SAR is too encompassing and requires resources that are not available and may be unrealistic to support if drafted by many entities throughout the country.

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Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:	Michael J. Pfeister	
Organization:	Salt River Project	
Telephone:	602-236-3970	
E-mail:	mjpfeist@srpnet.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **ECAR**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **FRCC**	☐	3 — Load-serving Entities
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1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☒ Yes

☐ No

Comments

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

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☒ Yes

☐ No

Comments

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4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☐ No

Comments

This should work if the requirement for a training plan that addresses "knowledge and competencies required for reliable system operations" remains in place (PER-002-0, R3.3).

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **ECAR** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

Group Name:	NERC Standards Evaluation Subcommittee
Lead Contact:	**Bill Bojorquez**
Contact Organization:	**ERCOT**
Contact Segment:	
Contact Telephone:	**512-248-3036**
Contact E-mail:	**bbojorquez@ercot.com**

Additional Member Name	Additional Member Organization	Region*	Segment*

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Comments

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2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☒ Yes

☐ No

Comments

The SES believes that a Task Analaysis is the correct approach.

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☒ Yes

☐ No

Comments

The SES believes that this is the correct general approach but notes two concerns: 1) The drafting team is directly differing from the Functional Model. While there are many problems with the Functional Model, and NERC has already determined that differences between a requirement in a standard and the definition of the Functional Model will be resolved in favor of the standard, the SES prefers a more coordinated approach. 2) The detail of the tasks may result in some organizations with a very small set of tasks for which they must meet the personnel training standard.

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

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4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

The SES notes that this is an excellent approach, but cautions that neither training programs nor personnel certifications nor qualifications are a guarantee of reliability.

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☐ No

Comments

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

The SES believes that it is appropriate to begin the development of training standards with those most affecting the real-time relaiablity. The SES also believes that it will be very difficult to develop training standards for personnel involved in longer range planning. It is an inherently different process, involving group efforts and cycles of review, that tends to identify strong and poor performers. There are general requirements for educational level and subjects, training in the tools of trade and the general processes used in loger range planning, but it difficult to conceive of a training program that could provide asssurance of "good planning."

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Do not submit a response in an unprotected copy of this form.

Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:	Michael Scott	
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Telephone:	602-250-1384	
E-mail:	Michael.Scott@aps.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **ECAR**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **FRCC**	☐	3 — Load-serving Entities
☐ **MRO**	☐	4 — Transmission-dependent Utilities
☐ **NPCC**	☒	5 — Electric Generators
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☐ **NA – Not Applicable**		

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

* If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

Posted for comments is the second draft of the System Personnel Training Standard Authorization Request (SAR). The approach proposed in this revised SAR is to be flexible to the industry in determining their unique training needs and not try to force a single set of training topics on a widely diversified audience. Rather than a "one-size fits all" list of requirements, this approach is based on the fact that quality training results from applying a systematic approach to training that includes training needs assessment, training development, delivery, and evaluation. The standard will provide the framework for a training program based on the tasks performed that impact reliability.

The requestor would like to gauge the level of consensus regarding the revised SAR and to obtain the input of the industry on the scope and applicability of the proposed standards. Accordingly, your comments included on this form, e-mailed with the subject "System Personnel Training SAR Comments" by March 20, 2006, would be appreciated.

Regarding the scope of the SAR:

The SAR Drafting Team is proposing that this SAR will result in two standards:

- One standard will require training all personnel who perform 'real-time operating tasks' that directly impact the reliability of the Bulk Electric System (BES)
- One standard will require training personnel who perform 'support tasks' that directly impact reliability of the BES.

The SAR Drafting Team wants to develop the standard for the personnel who perform 'real-time operating tasks' first, then develop the standard for personnel who perform 'support tasks'.

1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

We agree with this approach. We value the certification of operators, and the certification of personnel who perform support tasks such as engineering, management, and technical services.

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☐ Yes

☒ No

Comments

The wording here is a little ambiguous. Is it being proposed that the SAR Drafting Team identify and analyze the critical tasks associated with grid operations, and then each participating organization will determine within their unique structure who performs these critical tasks?...Then these identified personnel would fall under the auspices of the new standard?

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☐ Yes

☒ No

Comments

Once the tasks that "directly impact reliability of the BES" are identified and analyzed, each participating organization would be in the best position to decide which individuals would need to comply with the standard.

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
2. **Designing and adjusting the training program** to make sure it directly correlates performance requirements, learning objectives, and learning evaluation to tasks. The training program must be designed to bring the system operators from their current level of competency to the organization's desired level of competency.
3. **Developing the training program** so that it includes effective learning experiences and delivery methods. The approach to this step, as well as step 2, will drive the requirements for training and operating staffs.
4. **Delivering the training to the personnel**; in other words, ensure that the training actually takes place as designed.
5. **Verifying and documenting the competency** that the personnel achieved through a documented assessment process

4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

We agree with the SAT philosophy for determining training requirements. However, the description provided in Step 1 above prescribes strict adherence to the following model: Job Analysis, Task Analysis, Needs Assessment. At the risk of getting into semantics, the understanding of these terms is pivotal to successful training: (1) Job Analysis, i.e. identifying tasks associated with a job, and determining these task's (DIF) Difficulty/Importance/Frequency (2) Task Analysis, i.e. analysis of each of these tasks to identify the knowledge/skills/abilities involved, (3) "Needs Assessment" (aka Needs Analysis) regarding each task to identify/solve gaps between performance desired and existing performance.

We would challenge the Drafting Team to consider the possibility that thorough analysis can be performed correctly in a number of ways. For instance, many reserve the right to go no farther in the analysis process than the DIF determination, which

may reveal that the task is so simple (or so prescriptively proceduralized), or that is so unimportant (from a stability or reliability standpoint), or is done so frequently that the likelihood of excellent performance is very strong, that no further analysis is indicated.

In addition, flexibility is often provided to analysts to allow the use of Needs Assessment first, which may preclude the need for JTA at all. For example, if a performance deficiency is detected, Needs Assessment may determine that this problem occurred because of a procedure deficiency, human factor shortfall, or other non-training related challenge. The correct intervention could be a job aid, procedure revision, or better lighting. IF there is a knowledge or skill deficit, THEN a JTA may be performed, learning objectives designed, and coursework developed.

In summary, we believe that the Systematic Approach to Training is an excellent process, but that this standard should not prescribe the absolute sequence or order of its application.

Finally, the term "assessment" in item 5 above has a broad range of meaning. Do you mean that the trainee must be assessed (i.e. evaluations or examinations)? Or do you mean that the evaluation process needs to be assessed for effectiveness (or audited) periodically? Or do you mean that the improvement in personnel performance (because of training) needs to be measured or assessed via some pre-determined metrics?

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☐ No

Comments

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

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Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
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Group Comments (Complete this page if comments are from a group.)

Group Name: NPCC CP9 Reliability Standards Working Group

Lead Contact: **Guy V. Zito**

Contact Organization: **NPCC**

Contact Segment: **2**

Contact Telephone: **212-840-1070**

Contact E-mail: **gzito@npcc.org**

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Ralph Rufrano	New York Power Authority	NPCC	1
David Little	Nova Scotia Power, Maritimes	NPCC	1
Peter Lebro	National Grid	NPCC	1
David Kiguel	Hydro One Networks	NPCC	1
Jerad Barnhart	Nstar	NPCC	1
William Shemley	ISO-New England	NPCC	2
Greg Campoli	New York ISO	NPCC	2
Ron Falsetti	The IESO	NPCC	2
Al Adamson	New York State Rel. Council	NPCC	2
Guy Zito	Northeast Power Coor. Council	NPCC	2
Shashi Parekh	Mass. Dept. of Tele. and Energy	NPCC	9
Robert Pelligrinni	United Illuminating Co.	NPCC	1

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The SAR Drafting Team wants to develop the standard for the personnel who perform 'real-time operating tasks' first, then develop the standard for personnel who perform 'support tasks'.

1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

NPCC participating members believe the scope of the SAR should be limited to the tasks directly impacting the reliability of the Bulk Electric System. It is not entirely clear to whom this standard will apply.

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☐ Yes

☒ No

Comments

NPCC Participating members, although believe it is a laudable approach to allow the Operating Tasks Analysis to determine what and who the training program should address, the Standard should be initially directed at those who have direct control or those that have supervisory control to implement actions that may impact reliablity of the system.

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☐ Yes

☒ No

Comments

Many participating members of NPCC, although recognizing that this effort stems from a blackout recommendation have noted that the SAR seems vague, seems unmeasurable in a meaningful way and questions the overall need for a standard. Perhaps a guideline may be more appropriate.

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
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4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

If in fact a standard must develop then the NPCC participating members believe that the systematic approachful would be useful however it must be stressed that the individual organizations that must perform the training and show their affected employees must demonstrate a level of competancy than they must be afforded the latitude to tailor their training programs to accomplish this. How does one apply a metric to competency?

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☐ No

Comments

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

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Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:	Michael Calimano	
Organization:	New York Independent System Operator	
Telephone:	518-356-6129	
E-mail:	mcalimano@nyiso.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
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- One standard will require training personnel who perform 'support tasks' that directly impact reliability of the BES.

The SAR Drafting Team wants to develop the standard for the personnel who perform 'real-time operating tasks' first, then develop the standard for personnel who perform 'support tasks'.

1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

The NYISO agrees with the SAR drafting Team's approach to limit the scope of the standard to the area of "real time operating tasks" and to require a systematic approach to training. However, the SAR as written is too vague with regard to whom the standard applies. If the standard is meant to merely apply program method, a standard is not required - a definintion of what is intended by the existing requirement for "coordinated training" will do.

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☐ Yes

☒ No

Comments

A national "Operating Tasks Analysis" can provide a useful baseline reference on the topics training programs should address in assuring a base competency of operating personnel in North America. However, prior to the completion, review and evaluation of the task analysis project, it is premature to formalize a training standard based on that foundation. At the present time, if a training standard is needed, it should clearly be applied to those functional entities that are under compliance and certification requirements - RC, BA and TOP.

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☒ Yes

☒ No

Comments

The NYISO does agree that the proposed systematic approach to training will be helpful in developing effective training programs. The need for a North American "Operations Support Task Analysis" to define training which personnel or which organizational entities are required to comply with the training standard not clear. In the mandatory standard environment, each entity responsible to comply with NERC standards, will train operations staff to comply. Extending the standard to cover "support" tasks should be a secondary consideration, if it is necessary at all.

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
2. **Designing and adjusting the training program** to make sure it directly correlates performance requirements, learning objectives, and learning evaluation to tasks. The training program must be designed to bring the system operators from their current level of competency to the organization's desired level of competency.
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4. **Delivering the training to the personnel**; in other words, ensure that the training actually takes place as designed.
5. **Verifying and documenting the competency** that the personnel achieved through a documented assessment process

4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☒ No

Comments

The NYISO agrees that a requirement of a "systematic" approach to training will be a benefit to the industry. However as mentioened before, simply putting this as a standardf requirement without (a) some mention of topics to be included in the training program, and (b) a sense of how the requirement can be measured will render the standard too vague, which bring into question the need for such a standard.

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☒ No

Comments

The NYISO agrees that each entity should determine their own specific training needs and the methods to address those needs. If there is to be a benefit of a NERC training standard, such a standard should define a consissitant set of topics which need to be addressed across the industry, regardless of size, location or organizational structure.

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

The NYISO agrees that the systemaic approach to to training based on local needs and tasks is move that will benefit the reliable operation of the BES. However, the standard needs to be developed with a manageable scope, clearly defined measures of compliance, and it should contain an outline of topics that would insure consistancy in both the method and the content of operations training across the industry.

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Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:	James H. Sorrels, Jr.	
Organization:	American Electric Power	
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E-mail:	jhsorrels@aep.com	
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☒ Yes

☐ No

Comments

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2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☒ Yes

☐ No

Comments

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3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☒ Yes

☐ No

Comments

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
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4. **Delivering the training to the personnel**; in other words, ensure that the training actually takes place as designed.
5. **Verifying and documenting the competency** that the personnel achieved through a documented assessment process

4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

Yes, the NERC Certification Program already includes a list of required continuing education topics. Additional NERC training documents developed to influence and support the known training tasks from the NERC task analysis, would be good to support the standard, but not to measure the standard. These documents would be created separate from the standards and would be added to the existing NERC training documents.

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☐ No

Comments

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

The standard should provide a time specification and allowance for implementation of the standard. Putting future continuing education training materials and programs into format will fall into place more readily than the existing initial training program materials already in place by most entities. Re-development of these programs, especially if requiring additional staffing to handle development and delivery methods, would require more time to implement for existing progression programs.

Comment Form
Proposed System Personnel Training Standard

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **ECAR** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs, ISOs, Regional Reliability Councils
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	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Midwest Reliability Organization (MRO)

Lead Contact: **Dick Pursley**

Contact Organization: **MRO for group (Great River Energy for lead contact)**

Contact Segment: **2**

Contact Telephone: **(763) 241-2249**

Contact E-mail: **dpursley@grenergy.com**

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Terry Bilke	MISO	MRO	2
Robert Coish	MHEB	MRO	2
Dennis Florom	LES	MRO	2
Ken Goldsmith	Alliant Energy	MRO	2
Todd Gosnell	OPPD	MRO	2
Wayne Guttormson	SPC	MRO	2
Tom Mielnik	MEC	MRO	2
Jim Maenner	WPSC	MRO	2
Pam Oreschnick	XEL	MRO	2
Dave Rudolph	BEPC	MRO	2
Darrick Moe, Chair	WAPA	MRO	2
Joe Knight, Secretary	MRO	MRO	2
27 Additional MRO Members	Companies not named above	MRO	2

* If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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The requestor would like to gauge the level of consensus regarding the revised SAR and to obtain the input of the industry on the scope and applicability of the proposed standards. Accordingly, your comments included on this form, e-mailed with the subject "System Personnel Training SAR Comments" by March 20, 2006, would be appreciated.

Regarding the scope of the SAR:

The SAR Drafting Team is proposing that this SAR will result in two standards:

- One standard will require training all personnel who perform 'real-time operating tasks' that directly impact the reliability of the Bulk Electric System (BES)
- One standard will require training personnel who perform 'support tasks' that directly impact reliability of the BES.

The SAR Drafting Team wants to develop the standard for the personnel who perform 'real-time operating tasks' first, then develop the standard for personnel who perform 'support tasks'.

1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☒ Yes

☐ No

Comments

However, NERC needs to seriously address the accuracy and usability of the Functional Model.

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☒ Yes

☐ No

Comments

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
2. **Designing and adjusting the training program** to make sure it directly correlates performance requirements, learning objectives, and learning evaluation to tasks. The training program must be designed to bring the system operators from their current level of competency to the organization's desired level of competency.
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5. **Verifying and documenting the competency** that the personnel achieved through a documented assessment process

4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

The concern we have with a "systematic" approach is training that is required in areas where Operator exposure in real time is sporadic (e.g. disturbances, restoration, frequency arrest, voltage collapse) may be sacrificed. A "systematic" approach in our view will tend to concentrate more on supporting daily operating functions, and ignore keeping Operators familiar with abnormal operations which is critical to maintaining the BES. Unfortunately a "systematic" approach has challenges in the compliance world whereas a specific number of hours is measurable and can easily fit in the compliance world.

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☐ No

Comments

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

It appears that this SAR is not a new standard as checked under SAR type on SAR-1 but is actually a revision to existing standard PER-002-0. The PER-002-0 standard would appear to be redundant and not needed after this standard has been developed. We are very pleased about the NERC Personnel Subcommittee's interest and efforts to clarify and develop standards concerning training of support personnel. We also applaude the responsiveness of the System Personnel Training SAR Drafting Team to the initial concerns with the first draft of the SAR.

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Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
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	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: FRCC

Lead Contact: **Eric Senkowicz**

Contact Organization: **FRCC**

Contact Segment: **2**

Contact Telephone: **813-289-5644**

Contact E-mail: **esenkowicz@frcc.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Linda Campbell	FRCC	FRCC	2
Jeff Gooding	Florida Power & Light	FRCC	1
Alan Gale	City of Tallahassee	FRCC	5
Mark Bennett	Gainesville Regional Utilities	FRCC	5
Dennis Minton	Florida Keys Electric Co-op	FRCC	1

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1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☐ Yes

☒ No

Comments

We don't disagree with the concept but asking for endorsement of the "Operating Tasks Analysis" that has not been published or included for review with this SAR seems inappropriate and premature in the development of the standard itself especially if it will be used to "determine which types of organizations will be required to comply with the standard".

Need clarification on "type of organization" as this seems to be getting away from the registered entity concept.

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☐ Yes

☒ No

Comments

Need clarification on "type of organization" as this seems to be getting away from the registered entity concept.

The FRCC believes that efforts and resources should focus on "real-time" personnel standard at this time and should be closely coordinated and complementary to the developments of the PCGC and the new CEH Certification policy. Real-time personnel have the "primary" impact to the reliability of the BES and as such should be the focus of the standard. The development of any standards should at the very least, complement the Operator Certification process especially in terminology and overlapping of compliance "measures".

The PS scope with regard to "support personnel" needs to be limited at this time and not included witthin this SAR Further, we would propose to eliminate "support personnel" training scope completely from this SAR and initiate a "stand-alone" SAR addressing "support personnel" training.

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
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4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☐ Yes

☒ No

Comments

The FRCC appreciates the tremendous efforts that have been undertaken in researching, addressing and developing training program improvement strategies for the industry with respect to BES system operator training. We also agree in principle that the "systematic" approach to developing training programs is the "best" approach for the industry as we go forward.

Having said that, we do have significant concerns with the proposed implementation track via the "training standard". Our concern lies in translation of these subjective training concepts, principles and approaches into "clear" and "measurable" compliance elements, if the standard were to proceed through the development process.

The SAR states that "the training standard includes all five of these steps (of the systematic approach), and measures compliance by requiring documentation that these steps were performed". The FRCC contends that the necessary documentation to demonstrate compliance of a valid "systematic approach" leaves too much ambiguity to become effective Reliability Standards, Measures.

As we further reviewed this issue, we have come to the conclusion that the Reliability Standard may be the wrong document to use to convey the requirements of a "systematic training program" to the industry.

We suggest that the "Training Standard" should proceed but with a slightly diferent approach. The evaluation /verification and accreditation / certification (for lack of a specific terminology) of an entity's "systematic training program" should occur outside the Reliability Standards and Compliance arena. The evaluation should also be performed by appropriate personnel who are qualified and knowledgeable in the training concepts to ensure accurate determination of adequacy of such programs. The "Training Standard" would then prescribe training requirements, by job function (ie. hours in relevant study areas as determined by competency evaluations), and based on JTA impacts on BES reliability.

On further reflection, we would also offer that such an approach will lend itself better to improving the overall quality of industry training programs than the proposed track of the standard. An evalation / accreditation process will re-focus the programs away from striving to meet the "minimum" documentation requirements of a "systematic training program" to a cooperative process geared to, not only evaluate the program, but perhaps serve as an opportunity to share industry-wide training "best practices".

Finally, in light of limited resources, this approach would provide the industry the greatest flexibility at achieving compliance to the "Training Standard" by allowing entities access to not only "in house" training programs but also access to external training resources (as long as they have been "accredited" as a "systematic approach program") to fulfill their training objectives.

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☐ No

Comments

Some degree of self-determination is appropriate as long as it is based on an appropriate "Job Task Analysis".

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

We reiterate our concern with the development of a "support staff" training standard at this time. The NERC PS should focus its efforts on real-time operations of the BES at this time. Trying to get every entity to have a "Cadillac" training system is beyond the charge of establishing MINIMUM standards as stated in the SAR "purpose". Training programs for all the "support staff" in an organization would be a significant cost that may not significantly improve the reliability of the BES.

Introduction - Page SAR-5, item number 5. What process is an "ammendment of the Training Standard"? The word "amendment" is not used in the Reliability Standards Process Manual, Version 4 of 8/2/05. The SDT/PS should follow the approved process for modification and not attempt to create a new process by saying they are going to "amend" a standard when they can get around to it.

Finally, we want to reiterate our appreciation for the significant work of the PS and by no means are we suggesting it should be tempered or abandoned. We feel that the concepts, as described, do "need" to be delivered to the industry, we just don't concur that the "Training Standard" is an appropriate "systematic training program" evaluation and measurement vehicle.

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	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Pepco Holdings, Inc - Affiliates

Lead Contact: **Richard Kafka**

Contact Organization: **Potomac Electric Power Company**

Contact Segment: **1**

Contact Telephone: **(301) 469-5274**

Contact E-mail: **rjkafka@pepcoholdings.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
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Vic Davis	Delmarva Power and Light	RFC	1
John Miller	Conectiv Energy Supply, Inc.	RFC	5
James Newton	Pepco Energy Services	RFC	6

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1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

For each of the proposed standards for real time operating tasks and support tasks, would the standard differentiate between the new hire who may need to be trained to perform all of the tasks identified to a specified minimum level of competency and the more experienced person who might need, on a periodic basis, to demonstrate that they can still perform at the minimum level of competency and perhaps also perform at a specified higher level of competency?

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☒ Yes

☐ No

Comments

Using the task analysis would be a good method for identifying who would be subject to the real time operating tasks standard. The approach suggests that if a person performs any of the tasks identified with "real time operating" that person's organization regardless of its functional model type would be subject to the standard. Would the standard apply to an organization if the person performed only one or two tasks or if an organization's understanding of what a particular task entails differs from the accepted task analysis prepared by the Personnel Subcommittee?

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☒ Yes

☐ No

Comments

While this could be an acceptable method for identifying support tasks that directly impact reliability the range of organizations that might be affected could be much broader and more difficult to assess. And the same question needs to be asked…what if an organization performs only one or two support tasks and what if those tasks are performed by different kinds of persons in a wide variety of organization types? Would any organization that had perhaps one person in one department and one person in another department who each performed only one or two tasks be subject to the standard?

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The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

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4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

The systematic approach is an excellent approach to developing training versus requiring a specific number of hours of training on specific topics.

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☐ No

Comments

A standard that requires any given entity to determine its own specific training needs is preferable to one that prescribes or mandates training that might not be applicable to all organizations.

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

This is a much more labor intensive process. Arriving at an assessment that accurately measures a person's competency could be difficult to create or achieve, particularly in an organization with limited training resources.

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Do not submit a response in an unprotected copy of this form.

Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:	Daniel Taormina	
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E-mail:	dan.taormina@bge.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **ECAR**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **FRCC**	☒	3 — Load-serving Entities
☐ **MRO**	☐	4 — Transmission-dependent Utilities
☐ **NPCC**	☐	5 — Electric Generators
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☐ **WECC**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
☐ **NA – Not Applicable**		

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

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The requestor would like to gauge the level of consensus regarding the revised SAR and to obtain the input of the industry on the scope and applicability of the proposed standards. Accordingly, your comments included on this form, e-mailed with the subject "System Personnel Training SAR Comments" by March 20, 2006, would be appreciated.

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- One standard will require training all personnel who perform 'real-time operating tasks' that directly impact the reliability of the Bulk Electric System (BES)
- One standard will require training personnel who perform 'support tasks' that directly impact reliability of the BES.

The SAR Drafting Team wants to develop the standard for the personnel who perform 'real-time operating tasks' first, then develop the standard for personnel who perform 'support tasks'.

1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☒ Yes

☐ No

Comments

Every effort should be made to examine and leverage exsiting work and efforts that are in place already and functioning well. In the PJM RTO, LCC and MOC operators have PJM training requirements that need to be met for initial operator and ongoing continuing operator training. These requirements were established by taking into account several factors. It is strongly desired that the NERC standard would align with and recognize the initiatives currently underway in PJM.

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☒ Yes

☐ No

Comments

The role of the support staff at the Transmission Operator should be the primary focus, with the role of the support staff at Local Control Centers being secondary since the local control center individuals support the Transmission Operator who is the ultimate responsible entity.

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
2. **Designing and adjusting the training program** to make sure it directly correlates performance requirements, learning objectives, and learning evaluation to tasks. The training program must be designed to bring the system operators from their current level of competency to the organization's desired level of competency.
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4. **Delivering the training to the personnel**; in other words, ensure that the training actually takes place as designed.
5. **Verifying and documenting the competency** that the personnel achieved through a documented assessment process

4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☐ No

Comments

Yes, this approach is critical to ensuring that the training is relevant and specific to benefit each organization.

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

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Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:	Jeffrey T. Baker	
Organization:	Cinergy	
Telephone:	513-287-3368	
E-mail:	jeff.baker@cinergy.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
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1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

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For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☒ Yes

☐ No

Comments

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☒ Yes

☐ No

Comments

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The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

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4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☐ Yes

☒ No

Comments

My concern is this approach will result in voids. I believe high level goals should be outlined by the SAR drafting team with the individual enitites providing the necessary traing to meet each goal.

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

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Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:	Kathleen A. Davis	
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Telephone:	423-751-8023	
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NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
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1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

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2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☒ Yes

☐ No

Comments

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☒ Yes

☐ No

Comments

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4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

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☒ Yes

☐ No

Comments

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Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:	Ron Falsetti	
Organization:	IESO	
Telephone:	905-855-6187	
E-mail:	ron.falsetti@ieso.ca	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
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1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

We agree that the scope of the initial standard should cover training program pertaining to real-time operating tasks that directly impact reliability of the BES. However, the way this question is worded (…to persons performing…) and from the SAR as presented, it is not clear whether the proposed standard, even within the aforementioned scope, is intended to set requirements for:

(i) the entities that perform these operating functions to develop the needed training program for their operating personnel to acquire the competency to perform these tasks, or

(ii) the training program to cover a minimum set of topics that enables the operating personnel to acquire the competency to perform these tasks, or

(iii) both of the above or something else.

While we agree with the recommendation that a systematic approach be used to develop the required training program, and further recognize a training standard should not be overly prescriptive as different organizations (entities) may assign different/additional tasks to its operating personnel. We nevertheless believe that absent any specificities such as to whom the standards apply and a high level scope of the minimum tasks or task related topics to be covered by the training program, the need for having an industry-wide standard for personnel training becomes questionable.

In brief, the SAR as written fails to convey the essence of the requirements - to whom the standard apply and whether or not it is a process that is required, which we feel is too vague, or a minimum set of topics that need to be included in the training program, or both.

Regarding the applicability identified in the SAR:
For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☐ Yes

☒ No

Comments

While we agree that the Operating Tasks Analysis can offer assistance in providing a focus on who and the topics that a training program should cover, the analysis itself is not a critical factor in determining which organizations or functional entities should comply with the training standard (assuming a standard on training program development is needed). Without prejudice to the yet to be made available Operating Tasks Analysis results, we feel that, as a first step, the standard should be directed to at least those recognized entities that must make decisions in implementing, approving or directing others to implement actions that have a direct bearing on system reliability.

At the onset, the functional entities that are required to have a training program should be the prime candidates to comply with such a standard. At present, the certification standards for RC, BA and TOP are being developed and expected to be posting for balloting. Each of these standards contains a requirement for the respective entity (organization) to have a training program and provide its operating personnel with training (e.g. Standard ORG-022-1). Given this requirement, it makes logical sense that a standard on training program development be also applied to these entities.

To require other entities for which an organization certification standard and the corresponding requirement for having a training program do not current exist or expect to be established in the near future would likely be challenged by these other entities. Moreover, the scope of the training standard would be too wide for effective development and compliance monitoring.

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☒ Yes

☒ No

Comments

We do not hold a position on whether or not the proposed analysis be performed since the priority at this time is to (a) determine the need for having a standard for the entities (or is it the personnel as the question implies?) that perform "direct" tasks, and (b) develop the standard. Extending the standard to cover entities (or personnel) that perform the "support" tasks should be a secondary consideration and, when pursued, can be built upon the structure and success of the initial set.

We agree that the systematic approach will help responsible organizations develop a structured and effective training program for operating personnel to attain the required competency to perform their tasks. We further recognize that the training standards should not be prescriptive as different organizations may assign different tasks to its operating personnel, and hence the standards should provide the flexibility for these organizations to develop the training program according to their specific needs, budget and resource considerations, etc. However, as mentioned earlier, simply putting this as a standard requirement without (a) some mention of the topics, even just at a high level, to be included in the training program and (b) a sense of how the requirement can be measured may render the standard too vague, which begs a question on the need for this standard.

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4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☒ No

Comments

We agree that the systematic approach can help responsible organizations to develop a structured and effective training program to help operating personnel to acquire the needed competency to perform their tasks. However, as mentioned earlier, simply putting this as a standard requirement without (a) some mention of the topics, even just at a high level, to be included in the training program and (b) a sense of how the requirement can be measured may render the standard too vague, which begs a question on the need for this standard.

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5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☒ No

Comments

We agree that each entity should determine their specific training needs. However, believe the standard needs to include at least a set of high level training topics to be covered by the training program. Commensurate with our proposal that the RC, BA and TOP are the entities to which this standard will apply at least in the onset, their operating functions are clearly defined in the functional model. There is no reason why some of the topics that reflect their operating functions should not be included, as minimum requirements, in the standard to ensure that there is consistent coverage in the training programs for the same function across the industry, regardless of size, location and organization structure.

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

We feel that development of a training standard is a step in the right direction in view of the recommendations of the 2003 blackout report and given the requirements to have certified personnel for some of the functional entities and these entities' responsibility to provide training. However, the standard needs to be developed with manageable scope, tangible requirements that can be measured, and with an aim to achieve consistency in training development not just in terms of the process but also in terms of the topics for the same function across the industry. In this vein, we offer the following suggestions for consideration:

a. The SAR to clearly convey to whom (entities) the proposed standard would apply. To limit the scope at the onset, we suggest the standard be developed for compliance by the RC, BA and TOP only.
b. The SAR to provide a high level description of the requirements, which should include (i) the use of a systematic approach to develop the training program and (ii) a high level scope of coverage of the training program. The tasks listed in the draft Organization Certification standards for RC, BA and TOP could serve to provide this coverage.

Comment Form
Proposed System Personnel Training Standard

This form is to be used to submit comments on the proposed System Personnel Training Standard Authorization Request. Comments must be submitted by **March 20, 2006**. You may submit the completed form by e-mailing it to: sarcomm@nerc.com with the words "System Personnel Training SAR Comments" in the subject line. If you have questions please contact Mark Ladrow at mark.ladrow@nerc.net on 609-452-8060.

ALL DATA ON THIS FORM WILL BE TRANSFERRED AUTOMATICALLY TO A DATABASE.

DO: **Do** enter text only, with no formatting or styles added.
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Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:	Ed	
Organization:	Davis	
Telephone:	601-339-2614	
E-mail:	edavis@entergy.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **ECAR**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **FRCC**	☐	3 — Load-serving Entities
☐ **MRO**	☐	4 — Transmission-dependent Utilities
☐ **NPCC**	☐	5 — Electric Generators
☐ **RFC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☒ **SERC**	☐	7 — Large Electricity End Users
☐ **SPP**	☐	8 — Small Electricity End Users
☐ **WECC**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
☐ **NA – Not Applicable**		

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

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Background Information:

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The requestor would like to gauge the level of consensus regarding the revised SAR and to obtain the input of the industry on the scope and applicability of the proposed standards. Accordingly, your comments included on this form, e-mailed with the subject "System Personnel Training SAR Comments" by March 20, 2006, would be appreciated.

Regarding the scope of the SAR:

The SAR Drafting Team is proposing that this SAR will result in two standards:

- One standard will require training all personnel who perform 'real-time operating tasks' that directly impact the reliability of the Bulk Electric System (BES)
- One standard will require training personnel who perform 'support tasks' that directly impact reliability of the BES.

The SAR Drafting Team wants to develop the standard for the personnel who perform 'real-time operating tasks' first, then develop the standard for personnel who perform 'support tasks'.

1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☐ Yes

☒ No

Comments

This SAR continues to be overly broad, ambiguous and confusing. We are not sure but it appears the initial standard would require a process to be developed and not require training of anyone. Therefore this question is not appropriate at this time. We do agree that when the appropriate SAR is presented that the training standard should be limited to those persons performing real-time operating tasks that directly impact reliability of the BES.

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☐ Yes

☒ No

Comments

We are not sure but it appears the initial standard resulting from this SAR would require a process to be developed and not require training of anyone. Therefore this question is premature, not appropriate at this time, and should be asked when the SAR for personnel training is presented to the industry.

However, at this time we will say we do not agree with the drafting team's approach. The standard that will apply to the personnel who perform real-time operating tasks should apply to those personnel performing the tasks, not to the organizations.

An organization that takes on responsibility for meeting the requirements of a standard may delegate the tasks to another organization to actually perform the tasks. The training standards should apply to the personnel actually performing the work for the second organization, not the second organization, nor the organization responsible for meeting the requirements of the standards.

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☐ Yes

☒ No

Comments

Our response to Question 2 above also applies here with respect to Operations Support Task Analysis, the personnel performing those tasks, and the applicable organizations.

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
2. **Designing and adjusting the training program** to make sure it directly correlates performance requirements, learning objectives, and learning evaluation to tasks. The training program must be designed to bring the system operators from their current level of competency to the organization's desired level of competency.
3. **Developing the training program** so that it includes effective learning experiences and delivery methods. The approach to this step, as well as step 2, will drive the requirements for training and operating staffs.
4. **Delivering the training to the personnel**; in other words, ensure that the training actually takes place as designed.
5. **Verifying and documenting the competency** that the personnel achieved through a documented assessment process

4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

We agree that the standard developed from this SAR should expand on this SYSTEMATIC TRAINING PROCESS.

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☐ Yes

☒ No

Comments

We are not sure but it appears the initial standard resulting from this SAR would require a process to be developed and not require training of anyone. Therefore this question is premature, not appropriate at this time, and should be asked when the SAR for personnel training is presented to the industry.

Also, we are not sure we understand the statement nor the question. An organization should be able to specify the tasks for which it is responsible. That specification of tasks is through being the functional entity responsible to meet the requirements of a standard, or through a delegation agreement.

An organization whose employees perform tasks to meet reliability-related real-time tasks should have a process to evaluate the competancy of its personnel and to train its personnel to perform those tasks. That process should evaluate the specific training needs of the employees performing those tasks.

Competancy standards should apply to the personnel performing the tasks, not to the organization.

A list of training topics may be included in the standard but they would apply to the personnel performing the tasks, not to the organization.

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

We commend the SAR authors for modifying the SAR based on comments submitted. However, we believe the authors have not modified the SAR enough. This SAR continues to be overly broad, ambiguous and confusing. The SAR contains a discussion of many issues but does not specify the requirements of a standard resulting from THIS SAR.

We are not sure but THIS SAR seems to be requesting the initial standard would require a process to be developed and not require training of anyone. We agree that the development of the process should be vetted through the industry standards developemnt process to obtain industry-wide comments. However, we think the development of a PROCESS rises to the level of being a STANDARD. We also think that the PROCESS of a training program is not really measurable, except in a very subjective sense, and will cause significant problems with audits and sanctions.

Also, after reading the SAR it is not cleasr which entity is being discussed: the corporation that needs to develop a training program, or the employee who may need training. If the SAR is discussing both the corporation and the employee then it is not clear which parts of the SAR apply to the corporation and which apply to the employee.

However, we do not think the industry participants should guess about the intent and/or content of a standard to be developed. Nor should we agree to march forward with a vague request for a standard and associated requirements.

The SAR contains a discussion of Job Task Analysis, Operating Task Analysis and Operations Support Task Analysis that will be performed. Then, based on those results something else will be done. We suggest another SAR be written and submitted when those analyses are complete. For instance, Item 3 states the task analysis will supply the industry with the task analysis data that will serve as the foundation for performance requirements required to determine competency gaps.

There is a section entitled Concepts of the Training Standard which includes the statement that the proposed NERC training standard includes the requirements for these training standards. We are unable to find the requirements of the training standards in the SAR. They do not seem to be there.

The SAR contains 5 steps which appear to be steps in a training program PROCESS. Those steps seem reasonable.

The SAR also contains a highlighted section with three paragraphs. The first paragraph contains a reasonable statement that every organization should determine the tasks that its operating personel perform. The second paragraph contains the seemingly contradictory statement that the organization is not required to perform a Job Task Analysis. The third paragraph contains a statement that the Personnel Subcommittee is conducting three studies.

What would be the requirements of a standard that resulted from this SAR? We do not know from the content of this SAR and therefore suggest the authors make the SAR more explicit.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **ECAR** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	1 — Transmission Owners 2 — RTOs, ISOs, Regional Reliability Councils 3 — Load-serving Entities 4 — Transmission-dependent Utilities 5 — Electric Generators 6 — Electricity Brokers, Aggregators, and Marketers 7 — Large Electricity End Users 8 — Small Electricity End Users 9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: ISO / RTO Council

Lead Contact: **Bruce Balmat**

Contact Organization: **PJM**

Contact Segment: **2**

Contact Telephone: **610-666-8860**

Contact E-mail: **balmatbm@pjm.com**

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Lisa Szot	CAISO		2
Sam Jones	ERCOT		2
Ron Falsetti	IESO		2
Pete Brandien	ISONE		2
Bill Phillips	MISO		2
Mike Calimano	NYISO		2
Charles Yeung	SPP		2

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Background Information:

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- One standard will require training personnel who perform 'support tasks' that directly impact reliability of the BES.

The SAR Drafting Team wants to develop the standard for the personnel who perform 'real-time operating tasks' first, then develop the standard for personnel who perform 'support tasks'.

1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

The ISO/RTO Council (IRC) agrees with the SAR Drafting Team's approach to limit the scope of the standard to real-time operating tasks that directly impact the reliability of the Bulk Power System.

The IRC also agrees with the concept that a mandatory NERC standard not be overly prescriptive. In the case of a Personnel Training Program each Reliability Entity must tailor its Training Programs to the specific tasks its operating personnel are required to perform.

The IRC also recognizes the conflict facing this Drafting Team:

- Reliability entities do not have a common set of jobs tasks for "…the persons performing real-time operating tasks…" and therefore the Team logically wants to allow the Reliability entity to define the tasks that require training and to define the level of competency needed to achieve a desired outcome. However,

- Reliability entities that face non-compliance penalties want to be certain about what is expected from them including who (organization / personnel) and what (process / job tasks) are being covered. Equally critical is the issue of how to measure competency in a way that ensures that all operating personnel have the competency to ensure that the reliability of the bulk power system is maintained. Leaving the definition of competency to each Reliability entity does not ensure a base competency level for North America.

The IRC, while agreeing with the approach, believes that the SAR, as written, fails to convey the essence of a NERC standard - to whom does the standard apply, what is the requirement (achieving a NERC specified level of competency, or is the requirement to have a NERC specified process in place?)

The IRC, while understanding of the Drafting Team's above noted conflict, requests that if the Industry consensus is to have a Training Standard, then the Drafting Team must address:

(1) WHO (Organizations to have a process, or Operating Persons that must be trained)

(2) WHAT (Have a process in place, or Performance measures that define competency)

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☐ Yes

☒ No

Comments

While the IRC agrees that the Personnel Subcommittee's Operating Tasks Analysis can offer assistance in providing a focus on who and on what topics a training program should cover, the analysis itself is not a critical factor in determining which organizations or functional entities should comply with the training standard (assuming a standard on training program development is needed). Without prejudice to the yet to be made available Operating Tasks Analysis results, it is the IRC's opinion that, as a first step, the standard should be directed to at least those recognized entities that must make decisions in implementing, approving or directing others to implement actions that have a direct bearing on system reliability.

At the onset, the functional entities that are required to have a training program should be the prime candidates to comply with such a standard. At present, the certification standards for RC, BA and TOP are being developed and expected to be posting for balloting. Each of these standards contains a requirement for the respective entity (organization) to have a training program and provide its operating personnel with training (e.g. Standard ORG-022-1). Given this requirement, it makes logical sense that a standard on training program development be also applied to these entities.

To require other entities for which an organization certification standard and the corresponding requirement for having a training program do not currently exist or expect to be established in the near future would likely be challenged by these other entities. Moreover, the scope of the proposed training standard is too wide for effective development and compliance monitoring.

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☒ Yes

☒ No

Comments

In the mandatory standard environment each entity responsible to comply with a NERC standard, must do whatever is required to comply with that standard. To the extent that support persons need training to ensure that the entity complies, then training will be done (otherwise the entity would in the long or short run be unable to continually comply).

The IRC proposes that the priority of the Drafting Team be:

1 - Determine the need for having a standard

2 - Define WHO the standard applies to (is it reliability entities or is it directed at personnel as the question implies)

3. - Develop a standard

Extending the standard to include entities (or personnel) that perform "support" tasks is a secondary consideration; one that, if needed, should be pursued subsequent to the development of the primary standard.

The IRC does agree that the proposed Systematic approach would be useful to help organizations develop structured and effective training programs attain a required (by standard or by organization's needs) level of competency. The IRC agrees that training standards should not be prescriptive and that any Training standard must permit flexibility in HOW each responsible entity complies to the standard. However, as previously mentioned, crafting this SAR into a mandatory standard (a) without some definition of the topics to be included in the Training Programs, and (b) without some indication of how compliance will be measured - renders this SAR too vague, which in turn begs the question of the need for a standard at all.

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
2. **Designing and adjusting the training program** to make sure it directly correlates performance requirements, learning objectives, and learning evaluation to tasks. The training program must be designed to bring the system operators from their current level of competency to the organization's desired level of competency.
3. **Developing the training program** so that it includes effective learning experiences and delivery methods. The approach to this step, as well as step 2, will drive the requirements for training and operating staffs.
4. **Delivering the training to the personnel**; in other words, ensure that the training actually takes place as designed.
5. **Verifying and documenting the competency** that the personnel achieved through a documented assessment process

4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☒ No

Comments

The IRC does agree that the proposed Systematic approach would be useful to help organizations develop structured and effective training programs attain a required (by standard or by organization's needs) level of competency. The IRC agrees that training standards should not be prescriptive and that any Training standard must permit flexibility in HOW each responsible entity complies to the standard. However, as previously mentioned, crafting this SAR into a mandatory standard (a) without some definition of the topics to be included in the Training Programs, and (b) without some indication of how compliance will be measured - renders this SAR too vague, which in turn begs the question of the need for a standard at all.

The term 'competency' is subjective and not a measurable quantity. The proposed Systematic Approach is just that one approach out of many. Generally speaking , just as one training program is as good as another, one Training approach is as good as another. NERC may need to mandate training but it must provide more justification to show that it is mandatory to follow one approach.

The IRC proposes that if the PS believes that this standard is a goal that everyone should "strive" to achieve, then this proposal should be drafted as a Best Practice - but not as a standard.

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☒ No

Comments

The IRC does agree that "the final determination of what tasks are performed …be addressed in (a) training program…determined by each entity."

The IRC also agrees that if this SAR is to be a standard, then the proposal must identify, at least a high-level, the topics that must be used to meet the compliance requirements for a training program.

The IRC suggests that if this SAR is to proceed then the RC, BA and TOP are the entities to which this standard will apply because their operating functions are clearly defined in the functional model.

The IRC believes that there is no reason why some of the topics that reflect the operating functions of the three above noted functional entities should not be included, as minimum requirements, in the standard. This would ensure that there is consistent coverage in the training programs for the same function across the industry, regardless of size, location and organization structure.

The IRC agrees that the Personnel Subcommittee has created an excellent training manual that organizations should consider as a "Best Practice" approach to training, but this material need not be turned into a NERC Standard .

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

In its comments to the first draft of this SAR, the Industry overwhelmingly supports the value of Training. The IRC also strongly endorses the concept of training to ensure reliability, and supports the Systematic Approach process being developed. The Personnel Subcommittee has taken a step in the right direction in view of the recommendations of the 2003 Blackout Report, however, the IRC must point out the fact that the SAR is required to complement:

1. Current Certification process
2. Functional Model regarding the entities that are responsible for compliance to NERC standards
3. NERC Standards Process
   - Manageable scope
   - Measurable requirements
   - Consistent application and results

The IRC suggests:

* Create a "Best Practice" Training Approach that all entities can use - but if the Team decides to proceed with a standard then:

1. The Drafting Team review current standards for Training Obligations and requirements to avoid duplication
2. The Drafting Team clearly define the entities responsible for complying in terms of NERC's currently defined functional entities
   - The Team consider starting with RC, BA and T-OPer
3. The Drafting Team clearly establish its objective(s)
   - Have a process
   - Train personnel that do x.y.& z
   - both
4. The Drafting Team clearly define its requirements
   - suggest starting with the tasks listed in the Certification standards for RC, BA, T-Oper

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **ECAR** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	1 — Transmission Owners 2 — RTOs, ISOs, Regional Reliability Councils 3 — Load-serving Entities 4 — Transmission-dependent Utilities 5 — Electric Generators 6 — Electricity Brokers, Aggregators, and Marketers 7 — Large Electricity End Users 8 — Small Electricity End Users 9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: PJM

Lead Contact: **Albert DiCaprio**

Contact Organization: **PJM**

Contact Segment: **2**

Contact Telephone: **610-666-8854**

Contact E-mail: **dicapram@pjm.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Bruce Balmat	**PJM**		**2**
Joseph Willson	**PJM**		**2**
Mark Kuras	**PJM**		**2**

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The requestor would like to gauge the level of consensus regarding the revised SAR and to obtain the input of the industry on the scope and applicability of the proposed standards. Accordingly, your comments included on this form, e-mailed with the subject "System Personnel Training SAR Comments" by March 20, 2006, would be appreciated.

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- One standard will require training personnel who perform 'support tasks' that directly impact reliability of the BES.

The SAR Drafting Team wants to develop the standard for the personnel who perform 'real-time operating tasks' first, then develop the standard for personnel who perform 'support tasks'.

1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

PJM agrees with the SAR Drafting Team's approach to limit the scope of the standard to real-time operating tasks that directly impact the reliability of the Bulk Power System.

The PJM also agrees with the concept that a mandatory NERC standard not be overly prescriptive. In the case of a Personnel Training Program each Reliability Entity must tailor its Training Programs to the specific tasks its operating personnel are required to perform.

PJM also recognizes the conflict facing this Drafting Team:

- Reliability entities do not have a common set of jobs tasks for "…the persons performing real-time operating tasks…" and therefore the Team logically wants to allow the Reliability entity to define the tasks that require training and to define the level of competency needed to achieve a desired outcome. However,

- Reliability entities that face non-compliance penalties want to be certain about what is expected from them including who (organization / personnel) and what (process / job tasks) are being covered. Equally critical is the issue of how to measure competency in a way that ensures that all operating personnel have the competency to ensure that the reliability of the bulk power system is maintained. Leaving the definition of competency to each Reliability entity does not ensure a base competency level for North America.

PJM, while agreeing with the approach, believes that the SAR, as written, fails to convey the essence of a NERC standard - to whom does the standard apply, what is the requirement (achieving a NERC specified level of competency, or is the requirement to have a NERC specified process in place?)

PJM, while understanding of the Drafting Team's above noted conflict, requests that if the Industry consensus is to have a Training Standard, then the Drafting Team must address:

(1) WHO (Organizations to have a process, or Operating Persons that must be trained)

(2) WHAT (Have a process in place, or Performance measures that define competency)

Regarding the applicability identified in the SAR:
For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☐ Yes

☒ No

Comments

While PJM agrees that the Personnel Subcommittee's Operating Tasks Analysis can offer assistance in providing a focus on who and on what topics a training program should cover, the analysis itself is not a critical factor in determining which organizations or functional entities should comply with the training standard (assuming a standard on training program development is needed). Without prejudice to the yet to be made available Operating Tasks Analysis results, it is PJM's opinion that, as a first step, the standard should be directed to at least those recognized entities that must make decisions in implementing, approving or directing others to implement actions that have a direct bearing on system reliability.

At the onset, the functional entities that are required to have a training program should be the prime candidates to comply with such a standard. At present, the certification standards for RC, BA and TOP are being developed and expected to be posting for balloting. Each of these standards contains a requirement for the respective entity (organization) to have a training program and provide its operating personnel with training (e.g. Standard ORG-022-1). Given this requirement, it makes logical sense that a standard on training program development be also applied to these entities.

To require other entities for which an organization certification standard and the corresponding requirement for having a training program do not current exist or expect to be established in the near future would likely be challenged by these other entities. Moreover, the scope of the proposed training standard is too wide for effective development and compliance monitoring.

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☒ Yes

☒ No

Comments

In the mandatory standard environment each entity responsible to comply with a NERC standard, must do whatever is required to comply with that standard. To the extent that support persons need training to ensure that the entity complies, then training will be done (otherwise the entity would in the long or short run be unable to continually comply).

PJM proposes that the priority of the Drafting Team be:

1 - Determine the need for having a standard

2 - Define WHO the standard applies to (is it reliability entities or is it directed at personnel as the question implies)

3. - Develop a standard

Extending the standard to include entities (or personnel) that perform "support" tasks is a secondary consideration; one that, if needed, should be pursued subsequent to the development of the primary standard.

PJM does agree that the proposed Systematic approach would be useful to help organizations develop structured and effective training programs attain a required (by standard or by organization's needs) level of competency. PJM agrees that training standards should not be prescriptive and that any Training standard must permit flexibility in HOW each responsible entity complies to the standard. However, as previously mentioned, crafting this SAR into a mandatory standard (a) without some definition of the topics to be included in the Training Programs, and (b) without some indication of how compliance will be measured - renders this SAR too vague, which in turn begs the question of the need for a standard at all.

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
2. **Designing and adjusting the training program** to make sure it directly correlates performance requirements, learning objectives, and learning evaluation to tasks. The training program must be designed to bring the system operators from their current level of competency to the organization's desired level of competency.
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4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☒ No

Comments

PJM does agree that the proposed Systematic approach would be useful to help organizations develop structured and effective training programs attain a required (by standard or by organization's needs) level of competency. PJM agrees that training standards should not be prescriptive and that any Training standard must permit flexibility in HOW each responsible entity complies to the standard. However, as previously mentioned, crafting this SAR into a mandatory standard (a) without some definition of the topics to be included in the Training Programs, and (b) without some indication of how compliance will be measured - renders this SAR too vague, which in turn begs the question of the need for a standard at all.

The term 'competency' is subjective and not a measurable quantity. The proposed Systematic Approach is just that one approach out of many. Generally speaking , just as one training program is as good as another, one Training approach is as good as another. NERC may need to mandate training but it must provide more justification to show that it is mandatory to follow one approach.

PJM proposes that if the PS believes that this standard is a goal that everyone should "strive" to achieve, then this proposal should be drafted as a Best Practice - but not as a standard.

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☒ No

Comments

PJM does agree that "the final determination of what tasks are performed …be addressed in (a) training program…determined by each entity."

PJM also agrees that if this SAR is to be a standard, then the proposal must identify, at least a high-level, the topics that must be used to meet the compliance requirements for a training program.

PJM suggests that if this SAR is to proceed then the RC, BA and TOP are the entities to which this standard will apply because their operating functions are clearly defined in the functional model.

PJM believes that there is no reason why some of the topics that reflect the operating functions of the three above noted functional entities should not be included, as minimum requirements, in the standard. This would ensure that there is consistent coverage in the training programs for the same function across the industry, regardless of size, location and organization structure.

PJM agrees that the Personnel Subcommittee has created an excellent training manual that organizations should consider as a "Best Practice" approach to training, but this material need not be turned into a NERC Standard .

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

In its comments to the first draft of this SAR, the Industry overwhelmingly supports the value of Training. PJM also strongly endorses the concept of training to ensure reliability, and supports the Systematic Approach process being developed. The Personnel Subcommittee has taken a step in the right direction in view of the recommendations of the 2003 Blackout Report, however, PJM must point out the fact that the SAR is required to complement:

1. Current Certification process
2. Functional Model regarding the entities that are responsible for compliance to NERC standards
3. NERC Standards Process
   - Manageable scope
   - Measurable requirements
   - Consistent application and results

PJM suggests:

* Create a "Best Practice" Training Approach that all entities can use - but if the Team decides to proceed with a standard then:

1. The Drafting Team review current standards for Training Obligations and requirements to avoid duplication
2. The Drafting Team clearly define the entities responsible for complying in terms of NERC's currently defined functional entities
   - The Team consider starting with RC, BA and T-Oper
3. The Drafting Team clearly establish its objective(s)
   - Have a process
   - Train personnel that do x.y.& z
   - both
4. The Drafting Team clearly define its requirements
   - suggest starting with the tasks listed in the Certification standards for RC, BA, T-Oper

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Do not submit a response in an unprotected copy of this form.

Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:	Murale Gopinathan	
Organization:	Northeast Utilities	
Telephone:	(860) 665-6896	
E-mail:	gopinm@nu.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **ECAR**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **FRCC**	☐	3 — Load-serving Entities
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

* If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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The requestor would like to gauge the level of consensus regarding the revised SAR and to obtain the input of the industry on the scope and applicability of the proposed standards. Accordingly, your comments included on this form, e-mailed with the subject "System Personnel Training SAR Comments" by March 20, 2006, would be appreciated.

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The SAR Drafting Team is proposing that this SAR will result in two standards:

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- One standard will require training personnel who perform 'support tasks' that directly impact reliability of the BES.

The SAR Drafting Team wants to develop the standard for the personnel who perform 'real-time operating tasks' first, then develop the standard for personnel who perform 'support tasks'.

1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☐ Yes

☐ No

Comments

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☐ Yes

☐ No

Comments

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☐ Yes

☐ No

Comments

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

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5. **Verifying and documenting the competency** that the personnel achieved through a documented assessment process

4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

Northeast Utilities endorses the use of SAT process

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☐ Yes

☐ No

Comments

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Comments

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Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:	Jason Shaver	
Organization:	American Transmission Company	
Telephone:	262 506 6885	
E-mail:	jshaver@atcllc.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
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The SAR Drafting Team wants to develop the standard for the personnel who perform 'real-time operating tasks' first, then develop the standard for personnel who perform 'support tasks'.

1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

ATC supports the position of the SAR Drafting Team of breaking out the training standard into two separate standards. With the SAR Drafting Team creating this two tier approach, any standards from the initial phase should be balloted seperately from standards developed in the second phase.

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☐ Yes

☒ No

Comments

ATC reserves judgement on the SAR Drafting Team's approach until the results are revealed to the industry. In addition, the SAR does not discuss any alternate approaches considered by the SAR Drafting Team .

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☐ Yes

☒ No

Comments

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Regarding the Focus of the Proposed SAR

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4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

ATC is supportive of the 'systematic' approach to developing customized, personnel training as opposed to a centrally developed, topic specific, standardized approach to personnel training. The former approach allows for more flexibility between companies while providing a common framework for the industry. That being said, ATC recommedns the team give consideration to how NERC will validate and audit this standard as a customized approach will likely result in varying levels of documentation and results among companies.

Any standards that come out of this SAR should be complimentary ,or at a minimum parallel, to NERC's CEH accreditation process. This standard should not create a conflicting approach to what is currently being used for the NERC CEH accreditation process.

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5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☐ No

Comments

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

The SAR Team should consider whether this SAR, if applicable to Planning Authority personnel, also has applicability to other Reliability Functions, as indicated in the "Reliability Functions" section, such as Resource Planner, Transmission Planner and Distribution Provider.

Any standards that come out of this SAR should be complimentary ,or at a minimum parallel, to NERC's CEH accreditation process.

ATC requests that meeting invites for the proctored JTA Workshops be sent out by email in addition to being posted on the NERC Standards Development web page. The industry should know about the workshops as soon as they are agreed to by NERC to allow for adequate scheduling time.

ATC looks forward to reviewing this standard in the future.

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Group Comments (Complete this page if comments are from a group.)

Group Name: Southern Company-Transmission

Lead Contact: **Marc M. Butts**

Contact Organization: **Southern Company Services**

Contact Segment: **1**

Contact Telephone: **205-257-4839**

Contact E-mail: **mmbutts@southernco.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Jim Busbin	Southern Company Services	SERC	1
Jim Viikinsalo	Southern Company Services	SERC	1
Jim Griffith	Southern Company Services	SERC	1

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☒ Yes

☐ No

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☒ Yes

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☐ No

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☒ Yes

☐ No

Comments

We agree but there are still some very basic training requirements which are needed regardless of the function or region the work is being done. These functions must be done the same way by all or there will be confusion in the industry.

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☐ No

Comments

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

Comment Form
Proposed System Personnel Training Standard

This form is to be used to submit comments on the proposed System Personnel Training Standard Authorization Request. Comments must be submitted by **March 20, 2006**. You may submit the completed form by e-mailing it to: sarcomm@nerc.com with the words "System Personnel Training SAR Comments" in the subject line. If you have questions please contact Mark Ladrow at mark.ladrow@nerc.net on 609-452-8060.

ALL DATA ON THIS FORM WILL BE TRANSFERRED AUTOMATICALLY TO A DATABASE.

DO: **Do** enter text only, with no formatting or styles added.
Do use punctuation and capitalization as needed (except quotations).
Do use more than one form if responses do not fit in the spaces provided.
Do submit any formatted text or markups in a separate WORD file.

DO NOT: **Do not** insert tabs or paragraph returns in any data field.
Do not use numbering or bullets in any data field.
Do not use quotation marks in any data field.
Do not submit a response in an unprotected copy of this form.

Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:	John Horakh, 03-09-2006	
Organization:	MAAC	
Telephone:	609-625-6014	
E-mail:	john.horakh@pepcoholdings.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **ECAR**	☒	2 — RTOs, ISOs, Regional Reliability Councils
☐ **FRCC**	☐	3 — Load-serving Entities
☐ **MRO**	☐	4 — Transmission-dependent Utilities
☐ **NPCC**	☐	5 — Electric Generators
☒ **RFC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SERC**	☐	7 — Large Electricity End Users
☐ **SPP**	☐	8 — Small Electricity End Users
☐ **WECC**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
☐ **NA – Not Applicable**		

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

* If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

Posted for comments is the second draft of the System Personnel Training Standard Authorization Request (SAR). The approach proposed in this revised SAR is to be flexible to the industry in determining their unique training needs and not try to force a single set of training topics on a widely diversified audience. Rather than a "one-size fits all" list of requirements, this approach is based on the fact that quality training results from applying a systematic approach to training that includes training needs assessment, training development, delivery, and evaluation. The standard will provide the framework for a training program based on the tasks performed that impact reliability.

The requestor would like to gauge the level of consensus regarding the revised SAR and to obtain the input of the industry on the scope and applicability of the proposed standards. Accordingly, your comments included on this form, e-mailed with the subject "System Personnel Training SAR Comments" by March 20, 2006, would be appreciated.

Regarding the scope of the SAR:

The SAR Drafting Team is proposing that this SAR will result in two standards:

- One standard will require training all personnel who perform 'real-time operating tasks' that directly impact the reliability of the Bulk Electric System (BES)
- One standard will require training personnel who perform 'support tasks' that directly impact reliability of the BES.

The SAR Drafting Team wants to develop the standard for the personnel who perform 'real-time operating tasks' first, then develop the standard for personnel who perform 'support tasks'.

1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

☒ Yes

☐ No

Comments

Regarding the applicability identified in the SAR:

For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

☒ Yes

☐ No

Comments

But also need to determine the type of personnel within those organizations that perform "real-time" operating tasks

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

☒ Yes

☐ No

Comments

But also need to determine the types of personnel that perform the support tasks

Regarding the Focus of the Proposed SAR

The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
2. **Designing and adjusting the training program** to make sure it directly correlates performance requirements, learning objectives, and learning evaluation to tasks. The training program must be designed to bring the system operators from their current level of competency to the organization's desired level of competency.
3. **Developing the training program** so that it includes effective learning experiences and delivery methods. The approach to this step, as well as step 2, will drive the requirements for training and operating staffs.
4. **Delivering the training to the personnel**; in other words, ensure that the training actually takes place as designed.
5. **Verifying and documenting the competency** that the personnel achieved through a documented assessment process

4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

☒ Yes

☐ No

Comments

But this "systematic" approach pre-supposes that personnel are NOT at the organization's desired level of competency. There really needs to be a "Step 0" that periodically measures whether an individual currently possesses the organization's desired level of competency for the job or tasks they are performing. If not, then they need training.

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

☒ Yes

☐ No

Comments

However, a list of "such as" training topics would be acceptable

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Comments

Background:

The System Personnel Training SAR drafting team thanks all commenters who submitted comments on the second draft of the SAR. The second draft of the Personnel Training SAR was posted for a 30-day public comment period from February 17 through March 20, 2006. The drafting team asked stakeholders to provide feedback through a special Comment Form. There were 20 sets of comments submitted, representing comments from 64 different people from 59 different entities, representing all NERC Regions and 6 of the 9 industry segments.

Based on the comments received, the drafting team eliminated much of the explanatory information from the SAR and clarified the scope and applicability by making the following conforming changes to the SAR.

- The revised SAR clearly states that the scope is limited to training system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators.

- The revised SAR clearly states that the standard will include requirements for the following:
  - Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators.
  - Measure the mis-match between actual and desired performance, and
  - Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training.

- The revised SAR clearly states that the following documents will be developed in parallel with the standard to provide stakeholders with support in implementing the standard's requirements:
  - A generic, reliability-related list of tasks assigned to real-time system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators
  - How to determine task performance requirements
  - How to apply a systematic approach to training

With the above conforming changes, the drafting team is recommending that the SAR move forward to standard drafting.

In this 'Consideration of Comments' document, stakeholder comments have been organized so that it is easier to see the summary of changes in response to each aspect of the drafting team's approach to adding the missing measures and compliance elements.. All comments received on the can be viewed in their original format at:

http://www.nerc.com/~filez/standards/Compliance_Cleanup_V0.html

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error

or omission, you can contact the Vice President and Director of Standards, Gerry Cauley at 609-452-8060 or at gerry.cauley@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Reliability Standards Process Manual: http://www.nerc.com/standards/newstandardsprocess.html.

Industry Segments:
1 - Transmission Owners
2 - RTOs, ISOs, Regional Reliability Councils
3 - Load-serving Entities
4 - Transmission-dependent Utilities
5 - Electric Generators
6 - Electricity Brokers, Aggregators, and Marketers
7 - Large Electricity End Users
8 - Small Electricity End Users
9 - Federal, State, Provincial Regulatory or other Gv't Entities

List of commenters:

Commenter	Company	Industry Segments								
		1	2	3	4	5	6	7	8	9
Anita Lee	AESO		x							
Ken Goldsmith	Alliant Energy	x								
James H. Sorrels, Jr.	American Electric Power	x				x	x			
Michael Scott	Arizona Public Service Co.	x				x				
Daniel Taormina	Baltimore Gas and Electric	x		x						
Dave Rudolph	BEPC	x		x			x			
Lisa Szot	CAISO		x							
Jeffrey T. Baker	Cinergy	x		x			x			
Alan Gale	City of Tallahassee					x				
Walter Cintron	Con Edison of NY	x								
John Miller	Conectiv Energy Supply, Inc.					x				

Commenter	Company	Industry Segments								
		1	2	3	4	5	6	7	8	9
Vic Davis	Delmarva Power and Light	x								
Ed Davis	Entergy	x								
Sam Jones	ERCOT		x							
Dennis Minton	Florida Keys Electric Co-op	x								
Jeff Gooding	Florida Power & Light	x								
Eric Senkowicz	FRCC		x							
Linda Campbell	FRCC		x							
Mark Bennett	Gainesville Regional Utilities					x				
Dick Pursley	Great River Energy	x		x						
David Kiguel	Hydro One Networks	x								
Ron Falsetti	IESO		x							
Pete Brandien	ISO-New England		x							
Kathleen Goodman	ISO-New England		x							
William Shemley	ISO-New England		x							
Dennis Florom	LES	x		x		x				
John Horakh	MAAC		x							
Shashi Parekh	Mass. Dept. of Tele. and Energy									x
Tom Mielnik	MEC	x		x		x	x			
Robert Coish	MHEB	x		x		x	x			

Commenter	Company	Industry Segments								
		1	2	3	4	5	6	7	8	9
Bill Phillips	MISO		x							
Terry Bilke	MISO		x							
Joe Knight	MRO		x							
Peter Lebro	National Grid	x								
Bill Bojorquez	NERC Standards Evaluation Com.		x							
Greg Campoli	New York ISO		x							
Michael Calimano	New York ISO		x							
Ralph Rufrano	New York Power Authority	x								
Al Adamson	New York State Rel. Council		x							
Guy Zito	Northeast Power Coor. Council		x							
Murale Gopinathan	Northeast Utilities	x								
David Little	Nova Scotia Power, Maritimes	x								
Al Boesch	NPPD	x								
Jerad Barnhart	Nstar	x								
Todd Gosnell	OPPD			x		x	x			
James Newton	Pepco Energy Services						x			
Albert DiCaprio	PJM		x							
Bruce Balmat	PJM		x							
Joseph Willson	PJM		x							

Commenter	Company	Industry Segments								
		1	2	3	4	5	6	7	8	9
Mark Kuras	PJM		x							
Richard Kafka	Potomac Electric Power Company	x								
Valerie Hildebrand	Potomac Electric Power Company	x								
Michael J. Pfeister	Salt River Project	x								
Jim Busbin	Southern Company Services	x								
Jim Griffith	Southern Company Services	x								
Jim Viikinsalo	Southern Company Services	x								
Marc M. Butts	Southern Company Services	x								
Wayne Guttormson	SPC	x		x						
Charles Yeung	SPP		x							
Kathleen A. Davis	Tennessee Valley Authority	x								
Robert Pelligrinni	United Illuminating Co.	x								
Darrick Moe	WAPA	x								
Jim Maenner	WPSC			x			x			
Pam Oreschnick	XEL									

Index to Questions, Comments and Responses:

~~2.~~1. Do you agree with the approach to the training standard to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact reliability of the BES?

Summary Consideration: All commenter but one agreed with the drafting team's revised approach to limit the scope of the initial standard to persons performing real-time operating tasks that directly impact the reliability of the BES. Several commenters asked for additional clarification and the drafting team refined the original SAR to include the following:

> The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators.

Commenter	Yes	No	Comment
Entergy Services, Inc. (1) Ed Davis		✓	This SAR continues to be overly broad, ambiguous and confusing. We are not sure but it appears the initial standard would require a process to be developed and not require training of anyone. Therefore this question is not appropriate at this time. We do agree that when the appropriate SAR is presented that the training standard should be limited to those persons performing real-time operating tasks that directly impact reliability of the BES.

Response: The SAR has been reworded to clarify to whom the proposed standard will apply, and to clarify what will be required in the standard. The revised SAR does not require that a process be developed – it requires that a systematic process be followed. The wording now reads:

"The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators.

The proposed standard will require the use of a systematic approach to determining training needs: The proposed standard will require each Reliability Coordinator, Balancing Authority and Transmission Operator to:

- Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators.
- Measure the mis-match between actual and desired performance, and
- Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training.

The proposed standard will require that entities have evidence that a systematic approach to training was conducted and used as the basis for providing training.

The proposed standard will require that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its Company-specific List of Reliability-related Tasks."

Commenter	Yes	No	Comment
Northeast Power Coordinating Council CP9 Reliability Standards Working Group Guy Zito – NPCC (2) K. Goodman – ISO-NE(2) Ralph Rufrano – NYPA (1) David Little – NS Power (1) Peter Lebro – NGrid (1) David Kiguel – Hydro One (1) J. Barnhart – Nstar (1) W. Shemley – ISONE (2) Greg Campoli – NYISO (2) Ron Falsetti – IESO (2) A. Adamson – NYSRC (2) Sashi Parekh – MA Dept. of Tele. And Energy (9) R. Pelligrinni – United Illum. (1)	✓		NPCC participating members believe the scope of the SAR should be limited to the tasks directly impacting the reliability of the Bulk Electric System. It is not entirely clear to whom this standard will apply.
Response: The SAR has been reworded to clarify to whom the proposed standard will apply, and to clarify what will be required in the standard. The wording now reads**:** **"**The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators.			
ATC (1) Jason Shaver	✓		ATC supports the position of the SAR Drafting Team of breaking out the training standard into two separate standards. With the SAR Drafting Team creating this two tier approach, any standards from the initial phase should be balloted seperately from standards developed in the second phase.
Response: Agreed. Most commenters indicated that the SAR drafting team should focus, for now, solely on training for the real-time system operators who work for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators. As revised, the SAR will not address training for other personnel.			
NYISO (2) Michael Calimano	✓		The NYISO agrees with the SAR drafting Team's approach to limit the scope of the standard to the area of "real time operating tasks" and to require a systematic approach to training. However, the

Commenter	Yes	No	Comment
			SAR as written is too vague with regard to whom the standard applies. If the standard is meant to merely apply program method, a standard is not required - a definintion of what is intended by the existing requirement for "coordinated training" will do.
Response: The SAR has been reworded to clarify to whom the proposed standard will apply, and to clarify what will be required in the standard. The wording now reads: **"**The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators.			
Arizona Public Services (1) Michael Scott	✓		We agree with this approach. We value the certification of operators, and the certification of personnel who perform support tasks such as engineering, management, and technical services.
Response: Agreed. Most commenters indicated that the SAR drafting team should focus, for now, solely on training for the real-time system operators who work for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators. As revised, the SAR will not address training for other personnel.			
IESO (2) Ron Falsetti	✓		We agree that the scope of the initial standard should cover training program pertaining to real-time operating tasks that directly impact reliability of the BES. However, the way this question is worded (…to persons performing…) and from the SAR as presented, it is not clear whether the proposed standard, even within the aforementioned scope, is intended to set requirements for: (i) the entities that perform these operating functions to develop the needed training program for their operating personnel to acquire the competency to perform these tasks, or (ii) the training program to cover a minimum set of topics that enables the operating personnel to acquire the competency to perform these tasks, or (iii) both of the above or something else. While we agree with the recommendation that a systematic approach be used to develop the required training program, and further recognize a training standard should not be overly prescriptive as different organizations (entities) may assign different/additional tasks to its operating personnel. We nevertheless believe that absent any specificities such as to whom the standards apply and a high level scope of the minimum tasks or task related topics to be covered by the training program, the need for having an industry-wide standard for personnel training becomes questionable. In brief, the SAR as written fails to convey the essence of the requirements - to whom the standard apply and whether or not it is a process that is required, which we feel is too vague, or a minimum set of topics that need to be included in the training program, or both.

Commenter	Yes	No	Comment
Response: The SAR has been reworded to clarify to whom the proposed standard will apply, and to clarify what will be required in the standard. The wording now reads: **"**The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators. The proposed standard will require the use of a systematic approach to determining training needs: The proposed standard will require each Reliability Coordinator, Balancing Authority and Transmission Operator to: - Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators. - Measure the mis-match between actual and desired performance, and - Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training. The proposed standard will require that entities have evidence that a systematic approach to training was conducted and used as the basis for providing training. In regard to a list of topics, the drafting team believes that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefor their knowledge and skills are somewhat different. Training content should be designed based on performance requirements for a person's specific job. To do otherwise does not ensure that: 1. Training needed for performance of real-time reliability tasks are identified 2. Time and money are not wasted on unneeded training 3. Gaps in performance are identified 4. Training is designed and developed to match performance gaps 5. Demonstration of task performance through assessment of learning However, the drafting team will include some high level suggested topics in the standard; the PCGC already has a list of topics to select form for recertification in their Appendix A to their Certification Administrative Manual. The proposed standard will require that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its Company-specific List of Reliability-related Tasks.“			
Pepco Holdings, Inc. (1) Richard Kafka Valerie Hildebrand Vic Davis – Delmarva (1)	✓		For each of the proposed standards for real time operating tasks and support tasks, would the standard differentiate between the new hire who may need to be trained to perform all of the tasks identified to a specified minimum level of competency and the more experienced person who might need, on a periodic basis, to demonstrate that they can still perform at the minimum level of

Commenter	Yes	No	Comment
John Miller – Conectiv (5) J. Newton – Pepco Energy (6)			competency and perhaps also perform at a specified higher level of competency?
Response: As envisioned, the standard for system operators will require a training program for new operators and a training program that provides continuing education for existing operators. It will also require periodic drills or training for tasks performed infrequently to maintain competency.			
PJM (2) Albert DiCaprio Bruce Balmat Mark Kuran Joseph Willson ISO/RTO Council Bruce Balmat – PJM (2) Anita Lee – AESO (2) Liza Szot – CAISO (2) Sam Jones – ERCOT (2) Ron Falsetti – IESO (2) Pete Brandien – ISONE (2) Bill Phillips – MISO (2) Mike Calimano – NYISO (2) C. Yeung – SPP (2)	✓		PJM (ISO/RTO Council) agrees with the SAR Drafting Team's approach to limit the scope of the standard to real-time operating tasks that directly impact the reliability of the Bulk Power System. The PJM also agrees with the concept that a mandatory NERC standard not be overly prescriptive. In the case of a Personnel Training Program each Reliability Entity must tailor its Training Programs to the specific tasks its operating personnel are required to perform. PJM also recognizes the conflict facing this Drafting Team: - Reliability entities do not have a common set of jobs tasks for "…the persons performing real-time operating tasks…" and therefore the Team logically wants to allow the Reliability entity to define the tasks that require training and to define the level of competency needed to achieve a desired outcome. However, - Reliability entities that face non-compliance penalties want to be certain about what is expected from them including who (organization / personnel) and what (process / job tasks) are being covered. Equally critical is the issue of how to measure competency in a way that ensures that all operating personnel have the competency to ensure that the reliability of the bulk power system is maintained. Leaving the definition of competency to each Reliability entity does not ensure a base competency level for North America. PJM, (ISO/RTO Council) while agreeing with the approach, believes that the SAR, as written, fails to convey the essence of a NERC standard - to whom does the standard apply, what is the requirement (achieving a NERC specified level of competency, or is the requirement to have a NERC specified process in place?) PJM, (ISO/RTO Council) while understanding of the Drafting Team's above noted conflict, requests that if the Industry consensus is to have a Training Standard, then the Drafting Team must address: (1) WHO (Organizations to have a process, or Operating Persons that must be trained) (2) WHAT (Have a process in place, or Performance measures that define competency)
Response: The SAR has been reworded to clarify to whom the proposed standard will apply, and to clarify what will be required in the			

Commenter	Yes	No	Comment
standard. The wording now reads: "The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators. The proposed standard will require the use of a systematic approach to determining training needs: The proposed standard will require each Reliability Coordinator, Balancing Authority and Transmission Operator to: - Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators. - Measure the mis-match between actual and desired performance, and - Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training. The proposed standard will require that entities have evidence that a systematic approach to training was conducted and used as the basis for providing training. The proposed standard will require that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its Company-specific List of Reliability-related Tasks." The Drafting Team does not believe that prescribing a competency level for each task performed by each system operator for all Balancing Authorities, Reliability Coordinators, and Transmission Operators across the continent is valid. The performance requirements of a task must be defined with such specificity to be able to design training and learning assessments that will validate competency to perform that task. The same performance description cannot apply to the large number of system operators across the continent that will be covered by the standard. To define the competency level for each task would be to define the performance of each task to be exactly the same for all entities, which is neither practical, nor would it serve to ensure reliability. There may, however, be a subset of tasks for which proficiency should be set on a NERC-wide basis - the SAR has been written with enough flexibility so that this is not precluded.			
Southern Co. – Transm. (1) Marc M. Butts Jim Viikinsalo – SOCO (1) Jim Busbin – SOCO (1) Jim Griffith – SOCO (1)	✓		
AEP (1, 5, 6) James H. Sorrels, Jr.	✓		
TVA (1) Kathleen Davis	✓		
NERC Standards Evaluation	✓		

Commenter	Yes	No	Comment
Subcommittee Bill Bojorquez – ERCOT			
MAAC (2) John Horakh	✓		
Cinergy (1, 3, 6) Jeffrey T. Baker	✓		
Con Ed of New York (1) Walter Cintron	✓		
Salt River Project (1) Michael J. Pfeister	✓		
FRCC (2) Eric Senkowicz – FRCC Linda Campbell – FRCC Jeff Gooding – FPL (1) Alan Gale – TAL (5) Mark Bennett – Gainesville (5) Dennis Minton – FL Keys (1)	✓		
MRO (2) Dick Pursley – GRE (2) Al Boesch – NPPD (2) Terry Bilke – MISO (2) Bob Coish – MHEB (2) Dennis Florom – LES (2) Ken Goldsmith – ALT (2) Todd Gosnell – OPPD (2) W. Guttormson – SPC (2) Tom Mielnik – MEC (2) Jim Maenner P. Oreschnick – XEL (2) Dave Rudolph – BEPC (2) Darrick Moe – WAPA (2)	✓		

Commenter	Yes	No	Comment
Joe Knight – MRO (2) 27 additional MRO members not listed above.			

Regarding the applicability identified in the SAR:
For the Standard that will apply to the personnel who perform 'real-time' operating tasks, the SAR Drafting Team is proposing that the 'Operating Tasks Analysis' being conducted by the NERC Personnel Subcommittee serve as the basis for determining which types of organizations will be required to comply with the standard.

2. Do you agree with the SAR Drafting Team's approach to determining which types of organizations will be required to comply with the standard for personnel who perform 'real-time' operating tasks?

Summary Consideration: Most commenters indicated that they did not agree with this approach to determining which types of organizations will be required to comply with the standard. Through these responses and the responses to other questions, stakeholders clearly identified a preference for more specifically limiting the scope and drafting team modified the SAR to state that the training standard would apply to::

"System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."

Commenter	Yes	No	Comment
FRCC (2) Eric Senkowicz – FRCC Linda Campbell – FRCC Jeff Gooding – FPL (1) Alan Gale – TAL (5) Mark Bennett – Gainesville (5) Dennis Minton – FL Keys (1)		✓	We don't disagree with the concept but asking for endorsement of the "Operating Tasks Analysis" that has not been published or included for review with this SAR seems inappropriate and premature in the development of the standard itself especially if it will be used to "determine which types of organizations will be required to comply with the standard". Need clarification on "type of organization" as this seems to be getting away from the registered entity concept.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."			
Northeast Power Coordinating Council CP9 Reliability Standards Working Group Guy Zito – NPCC (2) K. Goodman – ISO-NE(2) Ralph Rufrano – NYPA (1)		✓	NPCC Participating members, although believe it is a laudable approach to allow the Operating Tasks Analysis to determine what and who the training program should address, the Standard should be initially directed at those who have direct control or those that have supervisory control to implement actions that may impact reliablity of the system.

Commenter	Yes	No	Comment
David Little – NS Power (1) Peter Lebro – NGrid (1) David Kiguel – Hydro One (1) J. Barnhart – Nstar (1) W. Shemley – ISONE (2) Greg Campoli – NYISO (2) Ron Falsetti – IESO (2) A. Adamson – NYSRC (2) Sashi Parekh – MA Dept. of Tele. And Energy (9) R. Pelligrinni – United Illum. (1)			
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."			
ATC (1) Jason Shaver		✓	ATC reserves judgement on the SAR Drafting Team's approach until the results are revealed to the industry. In addition, the SAR does not discuss any alternate approaches considered by the SAR Drafting Team .
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." In regard to a list of topics, the drafting team believes that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefor their knowledge and skills are somewhat different. Training content should be designed based on performance requirements for a person's specific job. To do otherwise does not ensure that: 1. Training needed for performance of real-time reliability tasks are identified 2. Time and money are not wasted on unneeded training 3. Gaps in performance are identified 4. Training is designed and developed to match performance gaps 5. Demonstration of task performance through assessment of learning			

Commenter	Yes	No	Comment
However, the drafting team will include some high level suggested topics in the standard; the PCGC already has a list of topics to select from for recertification in their Appendix A to their Certification Administrative Manual.			
Con Ed of New York (1) Walter Cintron		✓	Where is this information?
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." The results of the job analysis will be available as an attached reference document to the standard.			
Entergy Services, Inc. (1) Ed Davis		✓	We are not sure but it appears the initial standard resulting from this SAR would require a process to be developed and not require training of anyone. Therefore this question is premature, not appropriate at this time, and should be asked when the SAR for personnel training is presented to the industry. However, at this time we will say we do not agree with the drafting team's approach. The standard that will apply to the personnel who perform real-time operating tasks should apply to those personnel performing the tasks, not to the organizations. An organization that takes on responsibility for meeting the requirements of a standard may delegate the tasks to another organization to actually perform the tasks. The training standards should apply to the personnel actually performing the work for the second organization, not the second organization, nor the organization responsible for meeting the requirements of the standards.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." The requirements will be assigned to the Reliability Coordinator, Balancing Authority and Transmission Operator. It is up to these entities to ensure that their real-time system operating personnel are competent to perform assigned reliability –related tasks.			
NYISO (2)		✓	A national "Operating Tasks Analysis" can provide a useful baseline reference on the topics training programs should address in assuring a base competency of operating personnel in North

Commenter	Yes	No	Comment
Michael Calimano			America. However, prior to the completion, review and evaluation of the task analysis project, it is premature to formalize a training standard based on that foundation. At the present time, if a training standard is needed, it should clearly be applied to those functional entities that are under compliance and certification requirements - RC, BA and TOP.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." The requirements will be assigned to the Reliability Coordinator, Balancing Authority and Transmission Operator. It is up to these entities to ensure that their real-time system operating personnel are competent to perform assigned reliability–related tasks.			
Arizona Public Services (1) Michael Scott		✓	The wording here is a little ambiguous. Is it being proposed that the SAR Drafting Team identify and analyze the critical tasks associated with grid operations, and then each participating organization will determine within their unique structure who performs these critical tasks?...Then these identified personnel would fall under the auspices of the new standard?
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."			
IESO (2) Ron Falsetti		✓	While we agree that the Operating Tasks Analysis can offer assistance in providing a focus on who and the topics that a training program should cover, the analysis itself is not a critical factor in determining which organizations or functional entities should comply with the training standard (assuming a standard on training program development is needed). Without prejudice to the yet to be made available Operating Tasks Analysis results, we feel that, as a first step, the standard should be directed to at least those recognized entities that must make decisions in implementing, approving or directing others to implement actions that have a direct bearing on system reliability. At the onset, the functional entities that are required to have a training program should be the prime candidates to comply with such a standard. At present, the certification standards for RC, BA and TOP are being developed and expected to be posting for balloting. Each of these standards contains a requirement for the respective entity (organization) to have a training program and provide its operating personnel with training (e.g. Standard ORG-022-1). Given this requirement, it makes logical sense that a standard on training program development be also applied to these entities. To require other entities for which an organization certification standard and the corresponding requirement for having a training program do not current exist or expect to be established in the

Commenter	Yes	No	Comment
			near future would likely be challenged by these other entities. Moreover, the scope of the training standard would be too wide for effective development and compliance monitoring.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."			
ISO/RTO Council Bruce Balmat – PJM (2) Anita Lee – AESO (2) Liza Szot – CAISO (2) Sam Jones – ERCOT (2) Ron Falsetti – IESO (2) Pete Brandien – ISONE (2) Bill Phillips – MISO (2) Mike Calimano – NYISO (2) C. Yeung – SPP (2)		✓	While the IRC agrees that the Personnel Subcommittee's Operating Tasks Analysis can offer assistance in providing a focus on who and on what topics a training program should cover, the analysis itself is not a critical factor in determining which organizations or functional entities should comply with the training standard (assuming a standard on training program development is needed). Without prejudice to the yet to be made available Operating Tasks Analysis results, it is the IRC's opinion that, as a first step, the standard should be directed to at least those recognized entities that must make decisions in implementing, approving or directing others to implement actions that have a direct bearing on system reliability. At the onset, the functional entities that are required to have a training program should be the prime candidates to comply with such a standard. At present, the certification standards for RC, BA and TOP are being developed and expected to be posting for balloting. Each of these standards contains a requirement for the respective entity (organization) to have a training program and provide its operating personnel with training (e.g. Standard ORG-022-1). Given this requirement, it makes logical sense that a standard on training program development be also applied to these entities. To require other entities for which an organization certification standard and the corresponding requirement for having a training program do not currently exist or expect to be established in the near future would likely be challenged by these other entities. Moreover, the scope of the proposed training standard is too wide for effective development and compliance monitoring.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."			
PJM (2) Albert DiCaprio Bruce Balmat Mark Kuran		✓	While PJM agrees that the Personnel Subcommittee's Operating Tasks Analysis can offer assistance in providing a focus on who and on what topics a training program should cover, the analysis itself is not a critical factor in determining which organizations or functional entities should comply with the training standard (assuming a standard on training program development is needed). Without prejudice to the yet to be made available Operating Tasks Analysis results, it is

Commenter	Yes	No	Comment
Joseph Willson			PJM's opinion that, as a first step, the standard should be directed to at least those recognized entities that must make decisions in implementing, approving or directing others to implement actions that have a direct bearing on system reliability. At the onset, the functional entities that are required to have a training program should be the prime candidates to comply with such a standard. At present, the certification standards for RC, BA and TOP are being developed and expected to be posting for balloting. Each of these standards contains a requirement for the respective entity (organization) to have a training program and provide its operating personnel with training (e.g. Standard ORG-022-1). Given this requirement, it makes logical sense that a standard on training program development be also applied to these entities. To require other entities for which an organization certification standard and the corresponding requirement for having a training program do not current exist or expect to be established in the near future would likely be challenged by these other entities. Moreover, the scope of the proposed training standard is too wide for effective development and compliance monitoring.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."			
NERC Standards Evaluation Subcommittee Bill Bojorquez – ERCOT	✓		The SES believes that a Task Analaysis is the correct approach.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." The task list will be made available as a reference to the standard.			
MAAC (2) John Horakh	✓		But also need to determine the type of personnel within those organizations that perform "real-time" operating tasks.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be:			

Commenter	Yes	No	Comment
"System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." With the change in applicability of the standard to only those entities that are ORG certified (TO, BA, RC), there is a clear responsibility for these entities to train their personnel as identified in both this standard and the ORG cert standard for a given organization. It will be the certified organizations responsibility to ensure that personnel performing reliability related tasks in real-time identify and provide required training. If reliability related tasks are performed by other entities on behalf of the certified organization it is still the responsibility of the organization that is certified to meet NERC compliance requirements and ensure appropriate training has been identified and provided to those performing their reliability tasks.			
MRO (2) Dick Pursley – GRE (2) Al Boesch – NPPD (2) Terry Bilke – MISO (2) Bob Coish – MHEB (2) Dennis Florom – LES (2) Ken Goldsmith – ALT (2) Todd Gosnell – OPPD (2) W. Guttormson – SPC (2) Tom Mielnik – MEC (2) Jim Maenner P. Oreschnick – XEL (2) Dave Rudolph – BEPC (2) Darrick Moe – WAPA (2) Joe Knight – MRO (2) 27 additional MRO members not listed above.	✓		However, NERC needs to seriously address the accuracy and usability of the Functional Model.
Response: It is not within the scope of this proposed SAR or proposed standard to revise the Functional Model.			
Pepco Holdings, Inc. (1) Richard Kafka Valerie Hildebrand Vic Davis – Delmarva (1) John Miller – Conectiv (5)	✓		Using the task analysis would be a good method for identifying who would be subject to the real time operating tasks standard. The approach suggests that if a person performs any of the tasks identified with "real time operating" that person's organization regardless of its functional model type would be subject to the standard. Would the standard apply to an organization if the person performed only one or two tasks or if an organization's understanding of what a particular task entails differs from the accepted task analysis prepared by the Personnel Subcommittee?

Commenter	Yes	No	Comment
J. Newton – Pepco Energy (6)			
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."			
Salt River Project (1) Michael J. Pfeister	✓		
AEP (1, 5, 6) James H. Sorrels, Jr.	✓		
TVA (1) Kathleen Davis	✓		
Southern Co. – Transm. (1) Marc M. Butts Jim Viikinsalo – SOCO (1) Jim Busbin – SOCO (1) Jim Griffith – SOCO (1)	✓		
Cinergy (1, 3, 6) Jeffrey T. Baker	✓		

For the Standard that will apply to the personnel who perform 'support tasks', the SAR Drafting Team is proposing that an 'Operations Support Task Analysis' planned for development by the NERC Personnel Subcommittee serve as the basis for determining which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard.

3. Do you agree with the approach proposed above to determine which support tasks directly impact reliability of the BES and for determining which types of organizations will be required to comply with the standard?

Summary Consideration: Most commenters indicated that they did not agree with this approach. Through these responses and the responses to other questions, stakeholders clearly identified a preference for more specifically limiting the scope of this SAR and drafting team modified the SAR to state that the training would be for:

> "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."

The support tasks performed by support personnel will not be addressed in this standard.

Commenter	Yes	No	Comment
FRCC (2) Eric Senkowicz – FRCC Linda Campbell – FRCC Jeff Gooding – FPL (1) Alan Gale – TAL (5) Mark Bennett – Gainesville (5) Dennis Minton – FL Keys (1)		✓	Need clarification on "type of organization" as this seems to be getting away from the registered entity concept. The FRCC believes that efforts and resources should focus on "real-time" personnel standard at this time and should be closely coordinated and complementary to the developments of the PCGC and the new CEH Certification policy. Real-time personnel have the "primary" impact to the reliability of the BES and as such should be the focus of the standard. The development of any standards should at the very least, complement the Operator Certification process especially in terminology and overlapping of compliance "measures". The PS scope with regard to "support personnel" needs to be limited at this time and not included witthin this SAR Further, we would propose to eliminate "support personnel" training scope completely from this SAR and initiate a "stand-alone" SAR addressing "support personnel" training.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be**:** "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." The support tasks performed by support personnel will not be addressed in this standard.			
Northeast Power		✓	Many participating members of NPCC, although recognizing that this effort stems from a

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Coordinating Council CP9 Reliability Standards Working Group Guy Zito – NPCC (2) K. Goodman – ISO-NE(2) Ralph Rufrano – NYPA (1) David Little – NS Power (1) Peter Lebro – NGrid (1) David Kiguel – Hydro One (1) J. Barnhart – Nstar (1) W. Shemley – ISONE (2) Greg Campoli – NYISO (2) Ron Falsetti – IESO (2) A. Adamson – NYSRC (2) Sashi Parekh – MA Dept. of Tele. And Energy (9) R. Pelligrinni – United Illum. (1)			blackout recommendation have noted that the SAR seems vague, seems unmeasurable in a meaningful way and questions the overall need for a standard. Perhaps a guideline may be more appropriate.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." The support tasks performed by support personnel will not be addressed in this standard. Guidelines are not subject to compliance and accountability. The SAR team feels that not incorporating a training standard in response to the blackout recommendations would be doing a disservice to the industry.			
ATC (1) Jason Shaver		✓	ATC reserves judgement on the SAR Drafting Team's approach until the results are revealed to the industry. In addition, the SAR does not discuss alternate approaches considered by the SAR Drafting Team.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be:			

Commenter	Yes	No	Comment
"System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." Alternate approaches were considered such as requiring a list of topics to train to. Unfortunately not all organizations perform the same tasks. A more simplistic approach that does not employ a systematic process to training is not flexible to training needs and cannot ensure the following: 1. Training needed for performance of real-time reliability tasks are identified 2. Time and money are not wasted on unneeded training 3. Gaps in performance are identified 4. Training is designed and developed to match performance gaps 5. Demonstration of task performance through assessment of learning However, the drafting team will include some high level suggested topics in the standard; the PCGC already has a list of topics to select from for recertification in their Appendix A to their Certification Administrative Manual.			
Con Ed of New York (1) Walter Cintron		✓	The information should be provided in order to make an assessment.
Response: Agreed – however most entities felt that the scope of the SAR should be limited to just system operators. The drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."			
Arizona Public Services (1) Michael Scott		✓	Once the tasks that "directly impact reliability of the BES" are identified and analyzed, each participating organization would be in the best position to decide which individuals would need to comply with the standard.
Response: Agreed – however most entities felt that the scope of the SAR should be limited to just system operators. The drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." The support tasks performed by support personnel will not be addressed in this standard.			

Commenter	Yes	No	Comment
Entergy Services, Inc. (1) Ed Davis		✓	Our response to Question 2 above also applies here with respect to Operations Support Task Analysis, the personnel performing those tasks, and the applicable organizations.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." The support tasks performed by support personnel will not be addressed in this standard.			
NYISO (2) Michael Calimano	✓	✓	The NYISO does agree that the proposed systematic approach to training will be helpful in developing effective training programs. The need for a North American "Operations Support Task Analysis" to define training which personnel or which organizational entities are required to comply with the training standard not clear. In the mandatory standard environment, each entity responsible to comply with NERC standards, will train operations staff to comply. Extending the standard to cover "support" tasks should be a secondary consideration, if it is necessary at all.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." The support tasks performed by support personnel will not be addressed in this standard.			
IESO (2) Ron Falsetti	✓	✓	We do not hold a position on whether or not the proposed analysis be performed since the priority at this time is to (a) determine the need for having a standard for the entities (or is it the personnel as the question implies?) that perform "direct" tasks, and (b) develop the standard. Extending the standard to cover entities (or personnel) that perform the "support" tasks should be a secondary consideration and, when pursued, can be built upon the structure and success of the initial set. We agree that the systematic approach will help responsible organizations develop a structured and effective training program for operating personnel to attain the required competency to perform their tasks. We further recognize that the training standards should not be prescriptive as different organizations may assign different tasks to its operating personnel, and hence the standards should provide the flexibility for these organizations to develop the training program according to their specific needs, budget and resource considerations, etc.

Commenter	Yes	No	Comment
			However, as mentioned earlier, simply putting this as a standard requirement without (a) some mention of the topics, even just at a high level, to be included in the training program and (b) a sense of how the requirement can be measured may render the standard too vague, which begs a question on the need for this standard.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." In regard to a list of topics, the drafting team believes that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefor their knowledge and skills are somewhat different. Training content should be designed based on performance requirements for a person's specific job. To do otherwise does not ensure that: 1. Training needed for performance of real-time reliability tasks are identified 2. Time and money are not wasted on unneeded training 3. Gaps in performance are identified 4. Training is designed and developed to match performance gaps 5. Demonstration of task performance through assessment of learning However, the drafting team will include some high level suggested topics in the standard; the PCGC already has a list of topics to select form for recertification in their Appendix A to their Certification Administrative Manual. There may, however, be a subset of tasks for which proficiency should be set on a NERC-wide basis - the SAR has been written with enough flexibility so that this is not precluded.			
PJM (2) Albert DiCaprio Bruce Balmat Mark Kuran Joseph Willson ISO/RTO Council	✓	✓	In the mandatory standard environment each entity responsible to comply with a NERC standard, must do whatever is required to comply with that standard. To the extent that support persons need training to ensure that the entity complies, then training will be done (otherwise the entity would in the long or short run be unable to continually comply). PJM (IRC) proposes that the priority of the Drafting Team be: 1 - Determine the need for having a standard 2 - Define WHO the standard applies to (is it reliability entities or is it directed at personnel as

Commenter	Yes	No	Comment
Bruce Balmat – PJM (2) Anita Lee – AESO (2) Liza Szot – CAISO (2) Sam Jones – ERCOT (2) Ron Falsetti – IESO (2) Pete Brandien – ISONE (2) Bill Phillips – MISO (2) Mike Calimano – NYISO (2) C. Yeung – SPP (2)			the question implies) 3. - Develop a standard Extending the standard to include entities (or personnel) that perform "support" tasks is a secondary consideration; one that, if needed, should be pursued subsequent to the development of the primary standard. PJM (IRC)does agree that the proposed Systematic approach would be useful to help organizations develop structured and effective training programs attain a required (by standard or by organization's needs) level of competency. PJM (IRC) agrees that training standards should not be prescriptive and that any Training standard must permit flexibility in HOW each responsible entity complies to the standard. However, as previously mentioned, crafting this SAR into a mandatory standard (a) without some definition of the topics to be included in the Training Programs, and (b) without some indication of how compliance will be measured - renders this SAR too vague, which in turn begs the question of the need for a standard at all.

Response: During the initial posting of the SAR, most commenters indicated there is a reliability-related need for a training standard.

The drafting team has revised the applicability of the standard to clarify WHO must comply with the training standard – it is the Reliability Coordinator, Balancing Authority and Transmission Operator.

"The scope of this training standard is limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."

The SAR was revised to identify what the standard will require. The standard will require the use of a systematic approach to determining training needs. The standard will require each Reliability Coordinator, Balancing Authority and Transmission Operator to:

- Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators.
- Measure the mis-match between actual and desired performance, and
- Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training.

The SAR was revised to identify some of the measures – and these are expected to be further refined during standard development:

- The standard will require that entities have evidence that a systematic approach to training was conducted and used as the basis for providing training.
- The proposed standard will require that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its Company-specific List of Reliability-related Tasks.

-As envisioned, a very broad list of training topics may be included in the proposed standard to serve as an aid to those developing training

Commenter	Yes	No	Comment
for the operators in the RC, TOP and BA functions.			
Pepco Holdings, Inc. (1) Richard Kafka Valerie Hildebrand Vic Davis – Delmarva (1) John Miller – Conectiv (5) J. Newton – Pepco Energy (6)	✓		While this could be an acceptable method for identifying support tasks that directly impact reliability the range of organizations that might be affected could be much broader and more difficult to assess. And the same question needs to be asked…what if an organization performs only one or two support tasks and what if those tasks are performed by different kinds of persons in a wide variety of organization types? Would any organization that had perhaps one person in one department and one person in another department who each performed only one or two tasks be subject to the standard?
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."			
NERC Standards Evaluation Subcommittee Bill Bojorquez – ERCOT	✓		The SES believes that this is the correct general approach but notes two concerns: 1) The drafting team is directly differing from the Functional Model. While there are many problems with the Functional Model, and NERC has already determined that differences between a requirement in a standard and the definition of the Functional Model will be resolved in favor of the standard, the SES prefers a more coordinated approach. 2) The detail of the tasks may result in some organizations with a very small set of tasks for which they must meet the personnel training standard.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators." As revised, the standard's applicability is directly tied to functional model entities.			
MAAC (2) John Horakh	✓		But also need to determine the types of personnel that perform the support tasks.
Response: The question asked by the SAR drafting team is no longer a pertinent question since the drafting team has revised the applicability of the standard to be: "System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."			

Commenter	Yes	No	Comment
The support tasks performed by support personnel will not be addressed in this standard.			
Southern Co. – Transm. (1) Marc M. Butts Jim Viikinsalo – SOCO (1) Jim Busbin – SOCO (1) Jim Griffith – SOCO (1)	✓		
AEP (1, 5, 6) James H. Sorrels, Jr.	✓		
TVA (1) Kathleen Davis	✓		
Salt River Project (1) Michael J. Pfeister	✓		
Cinergy (1, 3, 6) Jeffrey T. Baker	✓		
MRO (2) Dick Pursley – GRE (2) Al Boesch – NPPD (2) Terry Bilke – MISO (2) Bob Coish – MHEB (2) Dennis Florom – LES (2) Ken Goldsmith – ALT (2) Todd Gosnell – OPPD (2) W. Guttormson – SPC (2) Tom Mielnik – MEC (2) Jim Maenner P. Oreschnick – XEL (2) Dave Rudolph – BEPC (2) Darrick Moe – WAPA (2) Joe Knight – MRO (2) 27 additional MRO members not listed above.	✓		

Regarding the Focus of the Proposed SAR
The SAR Drafting Team proposes that the training standards require the use of a 'systematic' approach to developing training. The 'systematic' approach requires the following:

1. **Determining the needs for training** through a task analysis or job and task analysis process, followed by a training needs assessment. This step enables the organization to know what training its operators need.
2. **Designing and adjusting the training program** to make sure it directly correlates performance requirements, learning objectives, and learning evaluation to tasks. The training program must be designed to bring the system operators from their current level of competency to the organization's desired level of competency.
3. **Developing the training program** so that it includes effective learning experiences and delivery methods. The approach to this step, as well as step 2, will drive the requirements for training and operating staffs.
4. **Delivering the training to the personnel**; in other words, ensure that the training actually takes place as designed.
5. **Verifying and documenting the competency** that the personnel achieved through a documented assessment process

4. Do you agree with the SAR Drafting Team that the training standards should require use of the 'systematic' approach to training as opposed to requiring specific topics be taught to all personnel for a specific number of hours?

Summary Consideration: A Systematic Approach to training is a methodical approach as opposed to a disorganized approach. There is not one systematic approach to training, and the SAR is not meant to imply that there is only one methodical approach. There are, however certain questions that must be asked and answered for training to produce the ability to perform tasks as required by the job.

.The revised SAR states more clearly that the standard will require entities to:

- Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators.
- Measure the mis-match between actual and desired performance, and
- Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training.

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Commenter	Yes	No	Comment
FRCC (2) Eric Senkowicz – FRCC Linda Campbell – FRCC Jeff Gooding – FPL (1) Alan Gale – TAL (5) Mark Bennett – Gainesville (5) Dennis Minton – FL Keys (1)		✓	The FRCC appreciates the tremendous efforts that have been undertaken in researching, addressing and developing training program improvement strategies for the industry with respect to BES system operator training. We also agree in principle that the "systematic" approach to developing training programs is the "best" approach for the industry as we go forward. Having said that, we do have significant concerns with the proposed implementation track via the "training standard". Our concern lies in translation of these subjective training concepts, principles and approaches into "clear" and "measurable" compliance elements, if the standard were to proceed through the development process. The SAR states that "the training standard includes all five of these steps (of the systematic approach), and measures compliance by requiring documentation that these steps were performed". The FRCC contends that the necessary documentation to demonstrate compliance of a valid "systematic approach" leaves too much ambiguity to become effective Reliability Standards, Measures. As we further reviewed this issue, we have come to the conclusion that the Reliability Standard may be the wrong document to use to convey the requirements of a "systematic training program" to the industry. We suggest that the "Training Standard" should proceed but with a slightly diferent approach. The evaluation /verification and accreditation / certification (for lack of a specific terminology) of an entity's "systematic training program" should occur outside the Reliability Standards and Compliance arena. The evaluation should also be performed by appropriate personnel who are qualified and knowledgeable in the training concepts to ensure accurate determination of adequacy of such programs. The "Training Standard" would then prescribe training requirements, by job function (ie. hours in relevant study areas as determined by competency evaluations), and based on JTA impacts on BES reliability. On further reflection, we would also offer that such an approach will lend itself better to improving the overall quality of industry training programs than the proposed track of the standard. An evalation / accreditation process will re-focus the programs away from striving to meet the "minimum" documentation requirements of a "systematic training program" to a cooperative process geared to, not only evaluate the program, but perhaps serve as an opportunity to share industry-wide training "best practices". Finally, in light of limited resources, this approach would provide the industry the greatest flexibility at achieving compliance to the "Training Standard" by allowing entities access to not only "in house" training programs but also access to external training resources (as long as they have been "accredited" as a "systematic approach program") to fulfill their training objectives.
Response: The SAR has been reworded to clarify to whom the proposed standard will apply, and what will be required in the standard. The wording now reads:			

Commenter	Yes	No	Comment
			"The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators. The proposed standard will require the use of a systematic approach to determining training needs: The proposed standard will require each Reliability Coordinator, Balancing Authority and Transmission Operator to: - Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators. - Measure the mis-match between actual and desired performance, and - Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training. The proposed standard will require that entities have evidence that a systematic approach to training was conducted and used as the basis for providing training. The proposed standard will require that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its Company-specific List of Reliability-related Tasks." Guidelines are not subject to compliance and accountability. The SAR team feels that not incorporating a training standard in response to the blackout recommendations would be doing a disservice to the industry. A Systematic Approach to training is a methodical approach as opposed to a disorganized approach. There is not one systematic approach to training, and the SAR is not meant to imply that there is only one methodical approach. There are, however certain questions that must be asked and answered for training to produce the ability to perform tasks as required by the job. However one groups those questions and whatever words one uses to describe those groupings, the basic questions must be addressed. In regard to "prescribing training requirements by job function (ie. hours in relevant study areas as determined by competency evaluations)", the drafting team interprets this to equate to a list of topics for a job classification, and that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefor their knowledge and skills are somewhat different. Training content should be designed based on performance requirements for a person's specific job. The Drafting Team does not believe that prescribing a competency level for each task performed by each system operator for all Balancing Authorities, Reliability Coordinator, and Transmission Operator across the continent is valid. The performance requirements of a task must be defined with such specificity to be able to design training and learning assessments that will validate competency to perform that task that the same performance description cannot apply to the large number of system operators across the continent that will be covered by the standard. To define the competency level for each task would be to define the performance of each task to be exactly the same for all entities, which is neither practical, nor would it serve to ensure reliability. There may, however, be a subset of tasks for which proficiency should be set on a NERC-wide

Commenter	Yes	No	Comment
basis - the SAR has been written with enough flexibility so that this is not precluded.			
Con Ed of New York (1) Walter Cintron		✓	Not in the form of the rejected SAR Draft.1.0 323825
Response: The SAR has been reworded to clarify to whom the proposed standard will apply, and what will be required in the standard. The wording now reads: "The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators. The proposed standard will require the use of a systematic approach to determining training needs: The proposed standard will require each Reliability Coordinator, Balancing Authority and Transmission Operator to: - Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators. - Measure the mis-match between actual and desired performance, and - Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training. The proposed standard will require that entities have evidence that a systematic approach to training was conducted and used as the basis for providing training. The proposed standard will require that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its Company-specific List of Reliability-related Tasks."			
ISO/RTO Council Bruce Balmat – PJM (2) Anita Lee – AESO (2) Liza Szot – CAISO (2) Sam Jones – ERCOT (2) Ron Falsetti – IESO (2) Pete Brandien – ISONE (2) Bill Phillips – MISO (2) Mike Calimano – NYISO (2) C. Yeung – SPP (2) PJM (2)	✓	✓	PJM (ISO/RTO Council) does agree that the proposed Systematic approach would be useful to help organizations develop structured and effective training programs attain a required (by standard or by organization's needs) level of competency. PJM agrees that training standards should not be prescriptive and that any Training standard must permit flexibility in HOW each responsible entity complies to the standard. However, as previously mentioned, crafting this SAR into a mandatory standard (a) without some definition of the topics to be included in the Training Programs, and (b) without some indication of how compliance will be measured - renders this SAR too vague, which in turn begs the question of the need for a standard at all. The term 'competency' is subjective and not a measurable quantity. The proposed Systematic Approach is just that one approach out of many. Generally speaking , just as one training program is as good as another, one Training approach is as good as another. NERC may need to mandate training but it must provide more justification to show that it is mandatory to follow one approach. PJM (ISO/RTO Council) proposes that if the PS believes that this standard is a goal that

Commenter	Yes	No	Comment
Albert DiCaprio Bruce Balmat Mark Kuran Joseph Willson			everyone should "strive" to achieve, then this proposal should be drafted as a Best Practice - but not as a standard.

Response: In regard to a list of topics, the drafting team believes that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefore their knowledge and skills are somewhat different.

Training content should be designed based on performance requirements for a person's specific job. To do otherwise does not ensure that:

1. Training needed for performance of real-time reliability tasks are identified
2. Time and money are not wasted on unneeded training
3. Gaps in performance are identified
4. Training is designed and developed to match performance gaps
5. Demonstration of task performance through assessment of learning

There may, however, be a subset of tasks for which proficiency should be set on a NERC-wide basis - the SAR has been written with enough flexibility so that this is not precluded.

However, the drafting team will include some high level suggested topics in the standard; the PCGC already has a list of topics to select from for recertification in their Appendix A to their Certification Administrative Manual.

Training should produce the ability to perform. Performance is measurable. If not, then we would never know when a task is complete and done as well as needed. Defining performance means identifying what triggers action, what action is required, and to what specification or criteria. To say it in simpler terms, a performance statement says "when this happens, do this, this well". What is done, when it is done, and how well it is done are all very measurable, as is training based on performance requirements. In addition, each of the stages of a systematic approach to training is very measurable. For example, it is easy to check to see if training objectives are based on performance requirements, and if learning assessments check for achievement of learning objectives.

The term competency is being used in a general manner in the SAR to refer to the ability to perform a task. Training should produce the ability to perform. Performance is measurable. If not, then we never know when a task is complete and done as well as needed. Defining performance means identifying what triggers action, what action is required, and to what specification or criteria. To say it in simpler terms, a performance statement says "when this happens, do this, this well". This is very measurable, and training based on performance requirements is very measurable.

Commenter	Yes	No	Comment
A Systematic Approach to training is a methodical approach as opposed to a disorganized approach. There is not one systematic approach to training, and the SAR is not meant to imply that there is only one methodical approach. There are, however certain questions that must be asked and answered for training to produce the ability to perform tasks as required by the job. However one groups those questions and whatever words one uses to describe those groupings, the basic questions must be addressed. For example, if training is requested to correct a performance problem and the question is not asked "Is the performance problem due to a lack of ability to perform?', then the training may be teaching something already known to someone that already has the ability to perform a task, but for some other reason is not applying his or her ability to perform in the workplace. Not using a systematic or methodical approach to training will not ensure that: 1. Training needed for performance of real-time reliability tasks are identified 2. Time and money are not wasted on unneeded training 3. Gaps in performance are identified 4. Training is designed and developed to match performance gaps 5. Demonstration of task performance through assessment of learning Best Practices are not subject to compliance and accountability. The SAR drafting team feels that not incorporating a training standard in response to the blackout recommendations would be doing a disservice to the industry. Best Practices and guidelines have existed for many, many years, and our industry has chosen to ignore them to a large extent, as was noted in the 2003 blackout reports, as it was in many other blackout reports before that.			
NYISO (2) Michael Calimano	✓	✓	The NYISO agrees that a requirement of a "systematic" approach to training will be a benefit to the industry. However as mentioened before, simply putting this as a standardf requirement without (a) some mention of topics to be included in the training program, and (b) a sense of how the requirement can be measured will render the standard too vague, which bring into question the need for such a standard.
Response: Training should produce the ability to perform. Performance is measurable. If not, then we never know when a task is complete and done as well as needed. Defining performance means identifying what triggers action, what action is required, and to what specification or criteria. To say it in simpler terms, a performance statement says "when this happens, do this, this well". What is done, when it is done, and how well it is done are all very measurable, as is training based on performance requirements. Whether or not the ability to do tasks is applied in the workplace is outside the scope of training. Many factors other than the ability to perform are involved in performance actually occurring. In regard to a list of topics, the drafting team believes that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefor their knowledge and skills are somewhat different. There may, however, be a subset of tasks for which proficiency should be set on a NERC-wide basis - the SAR has been written with enough flexibility so that this is not precluded. However, the drafting team will include some high level suggested topics in the standard; the PCGC already has a list of topics to select from for recertification in their Appendix A to their Certification Administrative Manual.			

Commenter	Yes	No	Comment
IESO (2) Ron Falsetti	✓	✓	We agree that the systematic approach can help responsible organizations to develop a structured and effective training program to help operating personnel to acquire the needed competency to perform their tasks. However, as mentioned earlier, simply putting this as a standard requirement without (a) some mention of the topics, even just at a high level, to be included in the training program and (b) a sense of how the requirement can be measured may render the standard too vague, which begs a question on the need for this standard.
Response: In regard to a list of topics, the drafting team believes that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefor their knowledge and skills are somewhat different. Training content should be designed based on performance requirements for a person's specific job. To do otherwise does not ensure that: 1. Training needed for performance of real-time reliability tasks are identified 2. Time and money are not wasted on unneeded training 3. Gaps in performance are identified 4. Training is designed and developed to match performance gaps 5. Demonstration of task performance through assessment of learning However, the drafting team will include some high level suggested topics in the standard; the PCGC already has a list of topics to select form for recertification in their Appendix A to their Certification Administrative Manual. There may be a subset of tasks for which proficiency should be set on a NERC-wide basis - the SAR has been written with enough flexibility so that this is not precluded. Training should produce the ability to perform. Performance is measurable. If not, then we never know when a task is complete and done as well as needed. Defining performance means identifying what triggers action, what action is required, and to what specification or criteria. To say it in simpler terms, a performance statement says "when this happens, do this, this well". What is done, when it is done, and how well it is done is all very measurable, as is training based on performance requirements. In addition, each of the stages of a systematic approach to training is very measurable. For example, it is easy to check to see if training objectives are based on performance requirements, and if learning assessments check for achievement of learning objectives.			
NPCC CP9 Reliability Standards Working Group Guy Zito – NPCC (2) K. Goodman – ISO-NE(2) Ralph Rufrano – NYPA (1) David Little – NS Power (1) Peter Lebro – NGrid (1)	✓		If in fact a standard must develop then the NPCC participating members believe that the systematic approachful would be useful however it must be stressed that the individual organizations that must perform the training and show their affected employees must demonstrate a level of competancy than they must be afforded the latitude to tailor their training programs to accomplish this. How does one apply a metric to competency?

Commenter	Yes	No	Comment
David Kiguel – Hydro One (1) J. Barnhart – Nstar (1) W. Shemley – ISONE (2) Greg Campoli – NYISO (2) Ron Falsetti – IESO (2) A. Adamson – NYSRC (2) Sashi Parekh – MA Dept. of Tele. And Energy (9) R. Pelligrinni – United Illum. (1)			
Response: Requiring a systematic approach to training will provide the flexibility to entities needed to tailor their training programs to fit their needs. That is why the approach of requiring a process has been chosen. In regard to metrics for competency, the term competency is being used in a general manner in the SAR to refer to the ability to perform a task. Training should produce the ability to perform. Performance is measurable. If not, then we never know when a task is complete and done as well as needed. Defining performance means identifying what triggers action, what action is required, and to what specification or criteria. To say it in simpler terms, a performance statement says “when this happens, do this, this well”. This is very measurable, training based on performance requirements is very measurable.			
ATC (1) Jason Shaver	✓		ATC is supportive of the 'systematic' approach to developing customized, personnel training as opposed to a centrally developed, topic specific, standardized approach to personnel training. The former approach allows for more flexibility between companies while providing a common framework for the industry. That being said, ATC recommedns the team give consideration to how NERC will validate and audit this standard as a customized approach will likely result in varying levels of documentation and results among companies. Any standards that come out of this SAR should be complimentary ,or at a minimum parallel, to NERC's CEH accreditation process. This standard should not create a conflicting approach to what is currently being used for the NERC CEH accreditation process.
Response: Points well made. The drafting team will consider documentation requirements. In regard to being complimentary to the CE Program, this approach fits quite well with the requirements of the CE Program.			
Entergy Services, Inc. (1) Ed Davis	✓		We agree that the standard developed from this SAR should expand on this SYSTEMATIC TRAINING PROCESS.
Response: The SAR has been reworded to clarify to whom the proposed standard will apply, and what will be required in the standard. The wording now reads: **”**The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and			

Commenter	Yes	No	Comment
Transmission Operators. The proposed standard will require the use of a systematic approach to determining training needs: The proposed standard will require each Reliability Coordinator, Balancing Authority and Transmission Operator to: - Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators. - Measure the mis-match between actual and desired performance, and - Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training. The proposed standard will require that entities have evidence that a systematic approach to training was conducted and used as the basis for providing training. The proposed standard will require that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its Company-specific List of Reliability-related Tasks.“			
MRO (2) Dick Pursley – GRE (2) Al Boesch – NPPD (2) Terry Bilke – MISO (2) Bob Coish – MHEB (2) Dennis Florom – LES (2) Ken Goldsmith – ALT (2) Todd Gosnell – OPPD (2) W. Guttormson – SPC (2) Tom Mielnik – MEC (2) Jim Maenner P. Oreschnick – XEL (2) Dave Rudolph – BEPC (2) Darrick Moe – WAPA (2) Joe Knight – MRO (2) 27 additional MRO members not listed above.	✓		The concern we have with a "systematic" approach is training that is required in areas where Operator exposure in real time is sporadic (e.g. disturbances, restoration, frequency arrest, voltage collapse) may be sacrificed. A "systematic" approach in our view will tend to concentrate more on supporting daily operating functions, and ignore keeping Operators familiar with abnormal operations which is critical to maintaining the BES. Unfortunately a "systematic" approach has challenges in the compliance world whereas a specific number of hours is measurable and can easily fit in the compliance world.
Response: As envisioned, the standard for system operators will require a training program for new operators and a training program that provides continuing education for existing operators. It will also require periodic drills or training for tasks performed infrequently to maintain competency.			
Southern Co. – Transm. (1)	✓		We agree but there are still some very basic training requirements which are needed regardless of the function or region the work is being done. These functions must be done the same way by

Commenter	Yes	No	Comment
Marc M. Butts Jim Viikinsalo – SOCO (1) Jim Busbin – SOCO (1) Jim Griffith – SOCO (1)			all or there will be confusion in the industry.
Response: The Drafting Team does not believe that prescribing a competency level for each task performed by each system operator for all Balancing Authorities, Reliability Coordinator, and Transmission Operator across the continent is valid. The performance requirements of a task must be defined with such specificity to be able to design training and learning assessments that will validate competency to perform that task that the same performance description cannot apply to the large number of system operators across the continent that will be covered by the standard. To define the competency level for each task would be to define the performance of each task to be exactly the same for all entities, which is neither practical, nor would it serve to ensure reliability. There may, however, be a subset of tasks for which proficiency should be set on a NERC-wide basis - the SAR has been written with enough flexibility so that this is not precluded.			
Northeast Utilities (1) Murale Gopinathan	✓		Northeast Utilities endorses the use of SAT process
Response: Thank you for your support.			
Arizona Public Services (1) Michael Scott	✓		We agree with the SAT philosophy for determining training requirements. However, the description provided in Step 1 above prescribes strict adherence to the following model: Job Analysis, Task Analysis, Needs Assessment. At the risk of getting into semantics, the understanding of these terms is pivotal to successful training: (1) Job Analysis, i.e. identifying tasks associated with a job, and determining these task's (DIF) Difficulty/Importance/Frequency (2) Task Analysis, i.e. analysis of each of these tasks to identify the knowledge/skills/abilities involved, (3) "Needs Assessment" (aka Needs Analysis) regarding each task to identify/solve gaps between performance desired and existing performance. We would challenge the Drafting Team to consider the possibility that thorough analysis can be performed correctly in a number of ways. For instance, many reserve the right to go no farther in the analysis process than the DIF determination, which may reveal that the task is so simple (or so prescriptively proceduralized), or that is so unimportant (from a stability or reliability standpoint), or is done so frequently that the likelihood of excellent performance is very strong, that no further analysis is indicated. In addition, flexibility is often provided to analysts to allow the use of Needs Assessment first, which may preclude the need for JTA at all. For example, if a performance deficiency is detected, Needs Assessment may determine that this problem occurred because of a procedure deficiency, human factor shortfall, or other non-training related challenge. The correct intervention could be a job aid, procedure revision, or better lighting. IF there is a knowledge or skill deficit, THEN a JTA may be performed, learning objectives designed, and coursework

Commenter	Yes	No	Comment
			developed. In summary, we believe that the Systematic Approach to Training is an excellent process, but that this standard should not prescribe the absolute sequence or order of its application. Finally, the term "assessment" in item 5 above has a broad range of meaning. Do you mean that the trainee must be assessed (i.e. evaluations or examinations)? Or do you mean that the evaluation process needs to be assessed for effectiveness (or audited) periodically? Or do you mean that the improvement in personnel performance (because of training) needs to be measured or assessed via some pre-determined metrics?
Response: Excellent comments. The drafting team realizes that we have a wide range of background and understanding of the training process in our industry. The points made by the commenter will be clarified in the standard and its attachments and references to a point. A standard cannot contain sufficient verbiage to explain all concepts and principles it addresses.			
NERC Standards Evaluation Subcommittee Bill Bojorquez – ERCOT	✓		The SES notes that this is an excellent approach, but cautions that neither training programs nor personnel certifications nor qualifications are a guarantee of reliability.
Response: Excellent observation! Training can only validate competency. It cannot guarantee performance. It can document the ability to perform, but performance can be deficient for many reasons, only one of which is the ability to perform. The lack of a procedure or insufficient operating systems or data are just some examples of things other than competency deficiency that can prevent an otherwise competent operator from performing as required.			
MAAC (2) John Horakh	✓		But this "systematic" approach pre-supposes that personnel are NOT at the organization's desired level of competency. There really needs to be a "Step 0" that periodically measures whether an individual currently possesses the organization's desired level of competency for the job or tasks they are performing. If not, then they need training.
Response: Agreed – only if there is a mis-match between desired and actual performance, is training needed. If a systematic approach to training is followed competency gaps for existing operators will be identified as compared to the require level of performance. The SAR has been reworded to clarify to whom the proposed standard will apply, and what will be required in the standard. The wording now reads: **"**The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators. The proposed standard will require the use of a systematic approach to determining training needs: The proposed standard will require each Reliability Coordinator, Balancing Authority and Transmission Operator to: - Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators. - Measure the mis-match between actual and desired performance, and			

Commenter	Yes	No	Comment
- Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training. The proposed standard will require that entities have evidence that a systematic approach to training was conducted and used as the basis for providing training. The proposed standard will require that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its Company-specific List of Reliability-related Tasks.“			
Pepco Holdings, Inc. (1) Richard Kafka Valerie Hildebrand Vic Davis – Delmarva (1) John Miller – Conectiv (5) J. Newton – Pepco Energy (6)	✓		The systematic approach is an excellent approach to developing training versus requiring a specific number of hours of training on specific topics.
Response: Thank you for your support of the use of the systematic approach.			
AEP (1, 5, 6) James H. Sorrels, Jr.	✓		Yes, the NERC Certification Program already includes a list of required continuing education topics. Additional NERC training documents developed to influence and support the known training tasks from the NERC task analysis, would be good to support the standard, but not to measure the standard. These documents would be created separate from the standards and would be added to the existing NERC training documents.
Response: This is what is intended.			
Salt River Project (1) Michael J. Pfeister	✓		
Cinergy (1, 3, 6) Jeffrey T. Baker	✓		
TVA (1) Kathleen Davis	✓		

The SAR Drafting Team proposes that the training standard should not include a list of required training topics, because any list of training topics would not be applicable to all entities. Instead, the SAR Drafting Team proposes that each entity provide training to support competent performance of all reliability-related real-time tasks performed within that entity. The final determination of what tasks are performed within each entity, and therefore what tasks must be addressed in the training program needs to be determined by each entity.

5. Do you agree with the approach to a training standard that requires each entity to determine their specific training needs?

Summary Consideration: Most commenters agreed that the standard should require each entity to determine its own specific training needs. Several entities in response to this question and in response to earlier questions indicated that a minimum list of topics would be helpful. The drafting team will therefore include some high level suggested topics in the standard; the PCGC already has a list of topics to select from for recertification in their Appendix A to their Certification Administrative Manual. There may be, however, a subset of tasks for which proficiency should be set on a NERC-wide basis - the revised SAR has been written with enough flexibility so that this is not precluded.

Commenter	Yes	No	Comment
Cinergy (1, 3, 6) Jeffrey T. Baker		✓	My concern is this approach will result in voids. I believe high level goals should be outlined by the SAR drafting team with the individual enitites providing the necessary traing to meet each goal.
Response: This is a unique comment in the way it is stated. What we believe it says is exactly what the systematic approach to training accomplishes – the goal of the standard is to require the application of a systematic (methodical as opposed to random or disorganized) approach to training as the goal, with the specifics of what constitutes a systematic approach, and the individuals entities retaining the latitude to determine their specific training needs using a systematic approach.			
Entergy Services, Inc. (1) Ed Davis		✓	We are not sure but it appears the initial standard resulting from this SAR would require a process to be developed and not require training of anyone. Therefore this question is premature, not appropriate at this time, and should be asked when the SAR for personnel training is presented to the industry. Also, we are not sure we understand the statement nor the question. An organization should be able to specify the tasks for which it is responsible. That specification of tasks is through being the functional entity responsible to meet the requirements of a standard, or through a delegation agreement. An organization whose employees perform tasks to meet reliability-related real-time tasks should have a process to evaluate the competency of its personnel and to train its personnel to perform those tasks. That process should evaluate the specific training needs of the employees performing those tasks. Competency standards should apply to the personnel performing the tasks, not to the organization.

Commenter	Yes	No	Comment
			A list of training topics may be included in the standard but they would apply to the personnel performing the tasks, not to the organization.

Response: The drafting team has revised the applicability of the standard to be:

"System operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators."

The SAR will require training of anyone (to whom it applies) that has found, using a systematic approach to training, that there is a gap in personnel's performance requirements and their ability to perform.

The drafting team agrees that an organization whose employees perform tasks to meet reliability-related real-time tasks should have a process to evaluate the competency of its personnel and to train its personnel to perform those tasks. That process should evaluate the specific training needs of the employees performing those tasks. That is the result of focusing the standard on a systematic approach to training as opposed to a list of required topics. Using a systematic approach, the organization determines which system operator tasks directly impact reliability and train to those tasks when they identify a competency gap.

In regard to a list of topics, the drafting team believes that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefor their knowledge and skills are somewhat different. Training content should be designed based on performance requirements for a person's specific job. To do otherwise does not ensure that:

1. Training needed for performance of real-time reliability tasks are identified
2. Time and money are not wasted on unneeded training
3. Gaps in performance are identified
4. Training is designed and developed to match performance gaps
5. Demonstration of task performance through assessment of learning

However, the drafting team will include some high level suggested topics in the standard; the PCGC already has a list of topics to select form for recertification in their Appendix A to their Certification Administrative Manual.

In regard to the proposed standard applying to personnel performing tasks, the drafting team agrees that competency applies to personal performing tasks. The SAR would require the responsible entities to ensure that personnel are provided with training that ensures that competency.

NYISO (2) Michael Calimano	✓	✓	The NYISO agrees that each entity should determine their own specific training needs and the methods to address those needs. If there is to be a benefit of a NERC training standard, such a standard should define a consistent set of topics which need to be addressed across the industry,

Commenter	Yes	No	Comment
			regardless of size, location or organizational structure.
Response: In regard to a list of topics, the drafting team believes that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefor their knowledge and skills are somewhat different. Training content should be designed based on performance requirements for a person's specific job. To do otherwise does not ensure that: 1. Training needed for performance of real-time reliability tasks are identified 2. Time and money are not wasted on unneeded training 3. Gaps in performance are identified 4. Training is designed and developed to match performance gaps 5. Demonstration of task performance through assessment of learning However, the drafting team will include some high level suggested topics in the standard; the PCGC already has a list of topics to select form for recertification in their Appendix A to their Certification Administrative Manual. There maybe a subset of tasks for which proficiency should be set on a NERC-wide basis - the revised SAR has been written with enough flexibility so that this is not precluded.			
IESO (2) Ron Falsetti	✓	✓	We agree that each entity should determine their specific training needs. However, believe the standard needs to include at least a set of high level training topics to be covered by the training program. Commensurate with our proposal that the RC, BA and TOP are the entities to which this standard will apply at least in the onset, their operating functions are clearly defined in the functional model. There is no reason why some of the topics that reflect their operating functions should not be included, as minimum requirements, in the standard to ensure that there is consistent coverage in the training programs for the same function across the industry, regardless of size, location and organization structure.
Response: In regard to a list of topics, the drafting team believes that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefor their knowledge and skills are somewhat different. Training content should be designed based on performance requirements for a person's specific job. To do otherwise does not ensure that: 1. Training needed for performance of real-time reliability tasks are identified 2. Time and money are not wasted on unneeded training 3. Gaps in performance are identified 4. Training is designed and developed to match performance gaps 5. Demonstration of task performance through assessment of learning			

Commenter	Yes	No	Comment
However, the drafting team will include some high level suggested topics in the standard; the PCGC already has a list of topics to select form for recertification in their Appendix A to their Certification Administrative Manual. There maybe a subset of tasks for which proficiency should be set on a NERC-wide basis - the revised SAR has been written with enough flexibility so that this is not precluded. Training should produce the ability to perform. Performance is measurable. If not, then we would never know when a task is complete and done as well as needed. Defining performance means identifying what triggers action, what action is required, and to what specification or criteria. To say it in simpler terms, a performance statement says “when this happens, do this, this well”. What is done, when it is done, and how well it is done are all very measurable, as is training based on performance requirements. In addition, each of the stages of a systematic approach to training are very measurable. For example, it is easy to check to see if training objectives are based on performance requirements, and if learning assessments check for achievement of learning objectives.			
PJM (2) Albert DiCaprio Bruce Balmat Mark Kuran Joseph Willson ISO/RTO Council Bruce Balmat – PJM (2) Anita Lee – AESO (2) Liza Szot – CAISO (2) Sam Jones – ERCOT (2) Ron Falsetti – IESO (2) Pete Brandien – ISONE (2) Bill Phillips – MISO (2) Mike Calimano – NYISO (2) C. Yeung – SPP (2)	✓	✓	PJM (IRC) does agree that "the final determination of what tasks are performed …be addressed in (a) training program…determined by each entity." PJM also agrees that if this SAR is to be a standard, then the proposal must identify, at least a high-level, the topics that must be used to meet the compliance requirements for a training program. PJM (IRC) suggests that if this SAR is to proceed then the RC, BA and TOP are the entities to which this standard will apply because their operating functions are clearly defined in the functional model. PJM (RIC) believes that there is no reason why some of the topics that reflect the operating functions of the three above noted functional entities should not be included, as minimum requirements, in the standard. This would ensure that there is consistent coverage in the training programs for the same function across the industry, regardless of size, location and organization structure. PJM (IRC) agrees that the Personnel Subcommittee has created an excellent training manual that organizations should consider as a "Best Practice” approach to training, but this material need not be turned into a NERC Standard .
Response: The SAR has been revised to clarify its scope and applicability and the drafting team believes the revised SAR supports your suggestions. The revised SAR is only applicable to the Reliability Coordinator, Balancing Authority and Transmission Operator. While the drafting team believes that each entity should identify its own company-specific list or reliability-related tasks and each entity should identify company-specific training needs, the drafting team also recognizes that there maybe a subset of tasks for which proficiency should be set on a NERC-wide basis - the revised SAR has been written with enough flexibility so that this is not precluded.			

Commenter	Yes	No	Comment
In regard to a list of topics, the drafting team believes that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefor their knowledge and skills are somewhat different. Training content should be designed based on performance requirements for a person's specific job. To do otherwise does not ensure that: 1 Training needed for performance of real-time reliability tasks are identified 2 Time and money are not wasted on unneeded training 3. Gaps in performance are identified 4. Training is designed and developed to match performance gaps 5. Demonstration of task performance through assessment of learning However, the drafting team will include some high level suggested topics in the standard; the PCGC already has a list of topics to select form for recertification in their Appendix A to their Certification Administrative Manual. There maybe a subset of tasks for which proficiency should be set on a NERC-wide basis - the revised SAR has been written with enough flexibility so that this is not precluded.			
Salt River Project (1) Michael J. Pfeister	✓		This should work if the requirement for a training plan that addresses "knowledge and competencies required for reliable system operations" remains in place (PER-002-0, R3.3).
Response: As envisioned, the proposed standard will replace PER-002-0, but will contain the same requirement.			
FRCC (2) Eric Senkowicz – FRCC Linda Campbell – FRCC Jeff Gooding – FPL (1) Alan Gale – TAL (5) Mark Bennett – Gainesville (5) Dennis Minton – FL Keys (1)	✓		Some degree of self-determination is appropriate as long as it is based on an appropriate "Job Task Analysis".
Response: We agree.			
MAAC (2) John Horakh	✓		However, a list of "such as" training topics would be acceptable.
Response: In regard to a list of topics, the drafting team believes that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs			

Commenter	Yes	No	Comment
to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefor their knowledge and skills are somewhat different. Training content should be designed based on performance requirements for a person's specific job. To do otherwise does not ensure that: 1. Training needed for performance of real-time reliability tasks are identified 2. Time and money are not wasted on unneeded training 3. Gaps in performance are identified 4. Training is designed and developed to match performance gaps 5. Demonstration of task performance through assessment of learning However, the drafting team will include some high level suggested topics in the standard; the PCGC already has a list of topics to select form for recertification in their Appendix A to their Certification Administrative Manual. There maybe a subset of tasks for which proficiency should be set on a NERC-wide basis - the revised SAR has been written with enough flexibility so that this is not precluded. Training should produce the ability to perform. Performance is measurable. If not, then we would never know when a task is complete and done as well as needed. Defining performance means identifying what triggers action, what action is required, and to what specification or criteria. To say it in simpler terms, a performance statement says "when this happens, do this, this well". What is done, when it is done, and how well it is done are all very measurable, as is training based on performance requirements. In addition, each of the stages of a systematic approach to training are very measurable. For example, it is easy to check to see if training objectives are based on performance requirements, and if learning assessments check for achievement of learning objectives.			
Pepco Holdings, Inc. (1) Richard Kafka Valerie Hildebrand Vic Davis – Delmarva (1) John Miller – Conectiv (5) J. Newton – Pepco Energy (6)	✓		A standard that requires any given entity to determine its own specific training needs is preferable to one that prescribes or mandates training that might not be applicable to all organizations.
Response: We agree.			
Northeast Power Coordinating Council CP9 Reliability Standards Working Group	✓		

Commenter	Yes	No	Comment
Guy Zito – NPCC (2) K. Goodman – ISO-NE(2) Ralph Rufrano – NYPA (1) David Little – NS Power (1) Peter Lebro – NGrid (1) David Kiguel – Hydro One (1) J. Barnhart – Nstar (1) W. Shemley – ISONE (2) Greg Campoli – NYISO (2) Ron Falsetti – IESO (2) A. Adamson – NYSRC (2) Sashi Parekh – MA Dept. of Tele. And Energy (9) R. Pelligrinni – United Illum. (1)			
NERC Standards Evaluation Subcommittee Bill Bojorquez – ERCOT	✓		
ATC (1) Jason Shaver	✓		
AEP (1, 5, 6) James H. Sorrels, Jr.	✓		
TVA (1) Kathleen Davis	✓		
Southern Co. – Transm. (1) Marc M. Butts Jim Viikinsalo – SOCO (1) Jim Busbin – SOCO (1) Jim Griffith – SOCO (1)	✓		
Arizona Public Services (1) Michael Scott	✓		
MRO (2)	✓		

Commenter	Yes	No	Comment
Dick Pursley – GRE (2) Al Boesch – NPPD (2) Terry Bilke – MISO (2) Bob Coish – MHEB (2) Dennis Florom – LES (2) Ken Goldsmith – ALT (2) Todd Gosnell – OPPD (2) W. Guttormson – SPC (2) Tom Mielnik – MEC (2) Jim Maenner P. Oreschnick – XEL (2) Dave Rudolph – BEPC (2) Darrick Moe – WAPA (2) Joe Knight – MRO (2) 27 additional MRO members not listed above.			
Con Ed of New York (1) Walter Cintron	✓		

6. Please provide any additional comments on the revised SAR that you haven't already provided above.

Commenter	Comment
FRCC (2) Eric Senkowicz – FRCC Linda Campbell – FRCC Jeff Gooding – FPL (1) Alan Gale – TAL (5) Mark Bennett – Gainesville (5) Dennis Minton – FL Keys (1)	We reiterate our concern with the development of a "support staff" training standard at this time. The NERC PS should focus its efforts on real-time operations of the BES at this time. Trying to get every entity to have a "Cadillac" training system is beyond the charge of establishing MINIMUM standards as stated in the SAR "purpose". Training programs for all the "support staff" in an organization would be a significant cost that may not significantly improve the reliability of the BES. Introduction - Page SAR-5, item number 5. What process is an "amendment of the Training Standard"? The word "amendment" is not used in the Reliability Standards Process Manual, Version 4 of 8/2/05. The SDT/PS should follow the approved process for modification and not attempt to create a new process by saying they are going to "amend" a standard when they can get around to it. Finally, we want to reiterate our appreciation for the significant work of the PS and by no means are we suggesting it should be tempered or abandoned. We feel that the concepts, as described, do "need" to be delivered to the industry, we just don't concur that the "Training Standard" is an appropriate "systematic training program" evaluation and measurement vehicle.
Response: The SAR was revised, and no longer contains any requirements for training 'support staff'. The SAR has been revised and no longer includes the reference 'amendment to the Training Standard.' The revised SAR still requires use of the systematic approach to developing training.	
ATC (1) Jason Shaver	The SAR Team should consider whether this SAR, if applicable to Planning Authority personnel, also has applicability to other Reliability Functions, as indicated in the "Reliability Functions" section, such as Resource Planner, Transmission Planner and Distribution Provider. Any standards that come out of this SAR should be complimentary ,or at a minimum parallel, to NERC's CEH accreditation process. ATC requests that meeting invites for the proctored JTA Workshops be sent out by email in addition to being posted on the NERC Standards Development web page. The industry should know about the workshops as soon as they are agreed to by NERC to allow for adequate scheduling time. ATC looks forward to reviewing this standard in the future.
Response: These comments are very relevant to the broader view of the 2003 Blackout Studies. Based on stakeholder comments, the drafting team reduced the scope of the SAR to focus specifically on the training of real-time system operators who perform reliability-related Bulk Electric System Tasks for Reliability Coordinators, Transmission Operators and Balancing Authorities. The drafting team still believes training is needed for other operating and support personnel, but recognizes that stakeholders want to focus on the more critical training issue first – that of the real time system operators.	

Commenter	Comment
There has been very intentional coordination between the SAR drafting team, the PCGC certificate maintenance process changes, and the proposed training standard to make them complimentary. As envisioned, this standard will complement the Organization Certification Standards, System Operator Certification, and the Continuing Education Hours program. The proctored JTA has been re-thought because of the difficulty an entity would have in sending a system operator to a location with the associated travel expenses to just complete a survey. The intent was to make the completion of the survey more valid by doing it with one-on-one instruction, but technology offers more options and the drafting team has realized that there are more cost responsible options available with the current state of technology. We will take a more cost-effective approach to doing the JTAs.	
Con Ed of New York (1) Walter Cintron	The Draft SAR 1.0 323825 is missing sections R9,10,11,12,13 and 14. I think that this initial SAR should limit itself to those performing operating tasks in a real-time or day-ahead time frame. As is the SAR is too encompassing and requires resources that are not available and may be unrealistic to support if drafted by many entities throughout the country.
Response: The SAR has been reworded to narrow the scope and applicability of the associated standard. The wording now reads: **"**The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators.	
Entergy Services, Inc. (1) Ed Davis	1. We commend the SAR authors for modifying the SAR based on comments submitted. However, we believe the authors have not modified the SAR enough. This SAR continues to be overly broad, ambiguous and confusing. The SAR contains a discussion of many issues but does not specify the requirements of a standard resulting from THIS SAR. 2. We are not sure but THIS SAR seems to be requesting the initial standard would require a process to be developed and not require training of anyone. We agree that the development of the process should be vetted through the industry standards developemnt process to obtain industry-wide comments. However, we think the development of a PROCESS rises to the level of being a STANDARD. We also think that the PROCESS of a training program is not really measurable, except in a very subjective sense, and will cause significant problems with audits and sanctions. 3. Also, after reading the SAR it is not cleasr which entity is being discussed: the corporation that needs to develop a training program, or the employee who may need training. If the SAR is discussing both the corporation and the employee then it is not clear which parts of the SAR apply to the corporation and which apply to the employee.

Commenter	Comment
	4. However, we do not think the industry participants should guess about the intent and/or content of a standard to be developed. Nor should we agree to march forward with a vague request for a standard and associated requirements. 5. The SAR contains a discussion of Job Task Analysis, Operating Task Analysis and Operations Support Task Analysis that will be performed. Then, based on those results something else will be done. We suggest another SAR be written and submitted when those analyses are complete. For instance, Item 3 states the task analysis will supply the industry with the task analysis data that will serve as the foundation for performance requirements required to determine competency gaps. 6. There is a section entitled Concepts of the Training Standard which includes the statement that the proposed NERC training standard includes the requirements for these training standards. We are unable to find the requirements of the training standards in the SAR. They do not seem to be there. 7. The SAR contains 5 steps which appear to be steps in a training program PROCESS. Those steps seem reasonable. The SAR also contains a highlighted section with three paragraphs. The first paragraph contains a reasonable statement that every organization should determine the tasks that its operating personnel perform. The second paragraph contains the seemingly contradictory statement that the organization is not required to perform a Job Task Analysis. The third paragraph contains a statement that the Personnel Subcommittee is conducting three studies. 8. What would be the requirements of a standard that resulted from this SAR? We do not know from the content of this SAR and therefore suggest the authors make the SAR more explicit.
Response: 1, 4, 8 The SAR has been reworded to clarify to whom the proposed standard will apply, and what will be required in the standard. The wording now reads: **"**The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators. The proposed standard will require the use of a systematic approach to determining training needs: The proposed standard will require each Reliability Coordinator, Balancing Authority and Transmission Operator to: - Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators.	

Commenter	Comment
	- Measure the mis-match between actual and desired performance, and - Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training. The proposed standard will require that entities have evidence that a systematic approach to training was conducted and used as the basis for providing training. The proposed standard will require that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its Company-specific List of Reliability-related Tasks." 2. Training should produce the ability to perform a task to a specified level of competence. Performance is measurable. If not, then we would never know when a task is complete and done as well as needed. Defining performance means identifying what triggers action, what action is required, and to what specification or criteria. To say it in simpler terms, a performance statement says "when this happens, do this, this well". What is done, when it is done, and how well it is done are all very measurable, as is training based on performance requirements. In addition, each of the stages of a systematic approach to training is very measurable. For example, it is easy to check to see if training objectives are based on performance requirements, and if learning assessments check for achievement of learning objectives. 3. Competency applies to personnel performing tasks. The SAR would require the responsible entities to ensure that personnel are provided with training that ensures that competency. 5. The SAR drafting team, based on stakeholder comments, has decided to limit the scope of the training standard to system operators performing real-time operations. The support tasks performed by support personnel will not be addressed in this standard. Furthermore the proposed standard will be limited to the organizations that will be certified under the pending orrganization certification standards for the Transmission Operator (TO), the Balancing Authority (BA) and the Reliability Coordinator (RC). The results of the NERC job analysis will be included in the standard as an aid to the industry, not the basis for determining to whom the standard applies. This is a change form the last version of the SAR. 6. The specific requirements of the standard have not been completely developed. It is the understanding of the SAR drafting team that this is not part of the SAR drafting and approval process. The SAR has been revised to omit these references. 7. Agree. The revised SAR states that entities will be required to follow a systematic process.
MRO (2) Dick Pursley – GRE (2) Al Boesch – NPPD (2) Terry Bilke – MISO (2) Bob Coish – MHEB (2)	It appears that this SAR is not a new standard as checked under SAR type on SAR-1 but is actually a revision to existing standard PER-002-0. The PER-002-0 standard would appear to be redundant and not needed after this standard has been developed. We are very pleased about the NERC Personnel Subcommittee's interest and efforts to clarify and develop standards concerning training of support personnel. We also applaude the responsiveness of the System Personnel Training SAR Drafting Team to the initial concerns with the first draft of the SAR.

Commenter	Comment
Dennis Florom – LES (2) Ken Goldsmith – ALT (2) Todd Gosnell – OPPD (2) W. Guttormson – SPC (2) Tom Mielnik – MEC (2) Jim Maenner P. Oreschnick – XEL (2) Dave Rudolph – BEPC (2) Darrick Moe – WAPA (2) Joe Knight – MRO (2) 27 additional MRO members not listed above.	
Response: Yes, this standard would replace PER_002.	
NYISO (2) Michael Calimano	The NYISO agrees that the systemaic approach to to training based on local needs and tasks is move that will benefit the reliable operation of the BES. However, the standard needs to be developed with a manageable scope, clearly defined measures of compliance, and it should contain an outline of topics that would insure consistancy in both the method and the content of operations training across the industry.
Response: The SAR has been reworded to clarify to whom the proposed standard will apply, and what will be required in the standard. The wording now reads: **"**The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators. The proposed standard will require the use of a systematic approach to determining training needs: The proposed standard will require each Reliability Coordinator, Balancing Authority and Transmission Operator to: - Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators. - Measure the mis-match between actual and desired performance, and - Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training. The proposed standard will require that entities have evidence that a systematic approach to training was conducted and used as the basis for providing training. The proposed standard will require that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its Company-specific List of Reliability-related Tasks.“	

Commenter	Comment
In regard to a list of topics, the drafting team believes that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefor their knowledge and skills are somewhat different. Training content should be designed based on performance requirements for a person's specific job. To do otherwise does not ensure that: 1. Training needed for performance of real-time reliability tasks are identified 2. Time and money are not wasted on unneeded training 3. Gaps in performance are identified 4. Training is designed and developed to match performance gaps 5. Demonstration of task performance through assessment of learning However, the drafting team will include some high level suggested topics in the standard; the PCGC already has a list of topics to select form for recertification in their Appendix A to their Certification Administrative Manual. There maybe a subset of tasks for which proficiency should be set on a NERC-wide basis - the revised SAR has been written with enough flexibility so that this is not precluded.	
IESO (2) Ron Falsetti	We feel that development of a training standard is a step in the right direction in view of the recommendations of the 2003 blackout report and given the requirements to have certified personnel for some of the functional entities and these entities' responsibility to provide training. However, the standard needs to be developed with manageable scope, tangible requirements that can be measured, and with an aim to achieve consistency in training development not just in terms of the process but also in terms of the topics for the same function across the industry. In this vein, we offer the following suggestions for consideration: a. The SAR to clearly convey to whom (entities) the proposed standard would apply. To limit the scope at the onset, we suggest the standard be developed for compliance by the RC, BA and TOP only. b. The SAR to provide a high level description of the requirements, which should include (i) the use of a systematic approach to develop the training program and (ii) a high level scope of coverage of the training program. The tasks listed in the draft Organization Certification standards for RC, BA and TOP could serve to provide this coverage.
Response: Agreed. The SAR has been reworded to clarify to whom the proposed standard will apply, and what will be required in the standard. The wording now reads: **"**The scope of this proposed training standard will be limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators.	

Commenter	Comment
The proposed standard will require the use of a systematic approach to determining training needs: The proposed standard will require each Reliability Coordinator, Balancing Authority and Transmission Operator to: - Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators. - Measure the mis-match between actual and desired performance, and - Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training. The proposed standard will require that entities have evidence that a systematic approach to training was conducted and used as the basis for providing training. The proposed standard will require that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its Company-specific List of Reliability-related Tasks.“ In regard to a list of topics, the drafting team believes that requiring all RCs, Bas, and TOs to train on the same topics, or even all BAs to train on the same list of topics, is counter to a valid approach to training. All BAs do not do the same tasks in the same way, therefor their knowledge and skills are somewhat different. Training content should be designed based on performance requirements for a person’s specific job. However, the drafting team will include some high level suggested topics in the standard. There maybe a subset of tasks for which proficiency should be set on a NERC-wide basis - the revised SAR has been written with enough flexibility so that this is not precluded.	
NERC Standards Evaluation Subcommittee Bill Bojorquez – ERCOT	The SES believes that it is appropriate to begin the development of training standards with those most affecting the real-time relaiablity. The SES also believes that it will be very difficult to develop training standards for personnel involved in longer range planning. It is an inherently different process, involving group efforts and cycles of review, that tends to identify strong and poor performers. There are general requirements for educational level and subjects, training in the tools of trade and the general processes used in loger range planning, but it difficult to conceive of a training program that could provide asssurance of "good planning."
Response: The scope of the SAR was reduced to focus, as you and several others suggested, on the real-time system operators who most affect real-time reliability.	
Pepco Holdings, Inc. (1) Richard Kafka Valerie Hildebrand Vic Davis – Delmarva (1) John Miller – Conectiv (5) J. Newton – Pepco Energy (6)	This is a much more labor intensive process. Arriving at an assessment that accurately measures a person’s competency could be difficult to create or achieve, particularly in an organization with limited training resources.
Response: While difficult to achieve, the drafting team believes that this is the right direction. End-users need to know that those charged with responsibility for protecting reliability of the interconnected grid are competent. As envisioned, the reference documents identified in the revised SAR will provide entities with assistance in meeting the standard’s requirements.	

Commenter	Comment
AEP (1, 5, 6) James H. Sorrels, Jr.	The standard should provide a time specification and allowance for implementation of the standard. Putting future continuing education training materials and programs into format will fall into place more readily than the existing initial training program materials already in place by most entities. Re-development of these programs, especially if requiring additional staffing to handle development and delivery methods, would require more time to implement for existing progression programs.
Response: Developing an implementation plan at this point would be premature – the implementation plan will be developed by the standard drafting team after the standard has been drafted.	
PJM (2) Albert DiCaprio Bruce Balmat Mark Kuran Joseph Willson ISO/RTO Council Bruce Balmat – PJM (2) Anita Lee – AESO (2) Liza Szot – CAISO (2) Sam Jones – ERCOT (2) Ron Falsetti – IESO (2) Pete Brandien – ISONE (2) Bill Phillips – MISO (2) Mike Calimano – NYISO (2) C. Yeung – SPP (2)	In its comments to the first draft of this SAR, the Industry overwhelmingly supports the value of Training. PJM (IRC) also strongly endorses the concept of training to ensure reliability, and supports the Systematic Approach process being developed. The Personnel Subcommittee has taken a step in the right direction in view of the recommendations of the 2003 Blackout Report, however, PJM must point out the fact that the SAR is required to complement: 1. Current Certification process 2. Functional Model regarding the entities that are responsible for compliance to NERC standards 3. NERC Standards Process - Manageable scope - Measurable requirements - Consistent application and results
Response: The drafting team believes that the revised SAR does complement the new certification standards, the functional model and the NERC standards process. The revised SAR does provide more clarity to the scope and applicability of the proposed standard.	

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Princeton Forrestal Village, 116-390 Village Boulevard, Princeton, New Jersey 08540-5731

May 16, 2006

TO: REGISTERED BALLOT BODY

Ladies and Gentlemen:

Announcement:
Drafting Team Nominations; Pre-ballot Reviews; Ballot Pools Open May 15

The Standards Authorization Committee (SAC) announces the following standards actions:

Nominations for Personnel Training Standard Drafting Team Open (May 15–June 1)

The SAC is soliciting drafting team members to draft the personnel training standard. The standard will require that the Reliability Coordinator, Balancing Authority, and Transmission Operator have a training program for real-time system operators. If you are interested in volunteering for this standard drafting team, please submit the nomination form by June 1, 2006.

Nominations for Modifications to IRO-004 for Timely Submission of Data Drafting Team Open (May 15–June 1)

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Ballot Pool for Disturbance Monitoring Equipment Standards (PRC-002 and PRC-018) Open (May 15)

A ballot pool has been created to vote on the two Phase III & IV standards that address disturbance monitoring & reporting (PRC-002 and PRC-018). Any member of the registered ballot body that is interested in casting a vote on this set of standards may join the ballot pool up to the time that the ballot window opens. Once the ballot window opens, no changes can be made to the ballot pool.

Ballot Pool for Coordination of Generator Reactive Resources Standards (VAR-001 and VAR-002) Open (May 15)

A ballot pool has been created to vote on the two Phase III & IV Standards that address the coordination of generator reactive resources (VAR-001 and VAR-002). Any member of the registered ballot body that is interested in casting a vote on this set of standards may join the ballot pool up to the time that the ballot window opens. Once the ballot window opens, no changes can be made to the ballot pool.

Standards Development Process

The NERC posting and balloting procedures are described in the *Reliability Standards Process Manual*, which contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

Please send questions to Maureen Long at maureen.long@nerc.net, or call 813-468-5998.

Sincerely,

Maureen E. Long

Maureen E. Long
Standards Process Manager

cc: Registered Ballot Body Registered Users
Standards Group
NERC Roster

When completed, email to: gerry.cauley@nerc.net

Standard Authorization Request Form

Title of Proposed Standard	System Personnel Training Requirements
Request Date	July 1, 2004
Draft Three	4/12/2006

SAR Requestor Information		**SAR Type** (Put an 'x' in front of one of these selections)	
Name	NERC Personnel Subcommittee	☒	New Standard
Primary Contact	Earl Cass, Chair NERC PS	☐	Revision to existing Standard
Telephone	605-882-7550	☐	Withdrawal of existing Standard
Fax	605-882-7453		
E-mail	cass@wapa.gov	☐	Urgent Action

Purpose/Industry Need

A training standard is needed to ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System are competent to perform those tasks. The competency of system operators is critical to the reliability of the North American Bulk Electric System.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies by double clicking the grey boxes.)*		
☒	Reliability Authority	Ensures the reliability of the bulk transmission system within its Reliability Authority area. This is the highest reliability authority.
☒	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within its metered boundary and supports system frequency in real time
☐	Interchange Authority	Authorizes valid and balanced Interchange Schedules
☐	Planning Authority	Plans the bulk electric system
☐	Resource Planner	Develops a long-term (>1year) plan for the resource adequacy of specific loads within a Planning Authority area.
☐	Transmission Planner	Develops a long-term (>1 year) plan for the reliability of transmission systems within its portion of the Planning Authority area.
☐	Transmission Service Provider	Provides transmission services to qualified market participants under applicable transmission service agreements
☐	Transmission Owner	Owns transmission facilities
☒	Transmission Operator	Operates and maintains the transmission facilities, and executes switching orders
☐	Distribution Provider	Provides and operates the “wires” between the transmission system and the customer
☐	Generator Owner	Owns and maintains generation unit(s)
☐	Generator Operator	Operates generation unit(s) and performs the functions of supplying energy and Interconnected Operations Services
☐	Purchasing-Selling Entity	The function of purchasing or selling energy, capacity and all necessary Interconnected Operations Services as required
☐	Market Operator	Integrates energy, capacity, balancing, and transmission resources to achieve an economic, reliability-constrained dispatch.
☐	Load-Serving Entity	Secures energy and transmission (and related generation services) to serve the end user

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check boxes for all that apply by double clicking the grey boxes.)*	
☐	1. Interconnected bulk electric systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☐	2. The frequency and voltage of interconnected bulk electric systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☐	3. Information necessary for the planning and operation of interconnected bulk electric systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk electric systems shall be developed, coordinated, maintained and implemented.
☐	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk electric systems.
☒	6. Personnel responsible for planning and operating interconnected bulk electric systems shall be trained, qualified and have the responsibility and authority to implement actions.
☐	7. The security of the interconnected bulk electric systems shall be assessed, monitored and maintained on a wide area basis.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box by double clicking the grey area.)*	
1.	The planning and operation of bulk electric systems shall recognize that reliability is an essential requirement of a robust North American economy. Yes
2.	An Organization Standard shall not give any market participant an unfair competitive advantage.Yes
3.	An Organization Standard shall neither mandate nor prohibit any specific market structure. Yes
4.	An Organization Standard shall not preclude market solutions to achieving compliance with that Standard. Yes
5.	An Organization Standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes

Detailed Description (Provide enough detail so that an independent entity familiar with the industry could draft, modify, or withdraw a Standard based on this description.)

The scope of this training standard is limited to system operators performing tasks in real-time that directly impact the reliability of the Bulk Electric System (BES), and who perform such tasks for entities registered as Reliability Coordinators, Balancing Authorities, and Transmission Operators.

The standard will require the use of a systematic approach to determining training needs:. The standard will require each Reliability Coordinator, Balancing Authority and Transmission Operator to:

- Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators.
- Measure the mis-match between actual and desired performance, and
- Use the results of the mis-match between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training.

The standard will require that entities have evidence that this systematic approach to training was conducted and used as the basis for providing training.

The proposed standard will require that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its Company-specific List of Reliability-related Tasks.

The following documents will be developed in parallel with this standard to provide support in its implementation:

- Generic, reliability-related tasks assigned to real-time system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators
- How to determine task performance requirements
- How to apply a systematic approach to training

Related SARs

SAR ID	Explanation These Organization Certification standards are not yet approved
Draft BA Certification Standards	Certification of the Balancing Authority function includes requirements for staffing with NERC-certified system operators. The proposed standard should set a required minimum training program for these certified system operators.
Draft RA Certification Standards	Certification of the Reliability Authority function includes requirements for staffing with NERC-certified system operators. The proposed standard should set a required minimum training program for these certified system operators.
Draft TOP Certification Standards	Certification of the Transmission Operator Authority function includes requirements for staffing with NERC-certified system operators. The proposed standard should set a required minimum training program for these certified

	system operators.

Regional Differences

Region	Explanation
RFC	
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
SPP	
WECC	

Related NERC Reliability Standards or Planning Standards

ID	
PER-001-0	Operating Personnel Responsibility and Authority
PER-002-0	Operating Personnel Training (To be retired)
PER-003-0	Operating Personnel Credentials
PER-004-0	Reliability Coordination Staffing
1200	Urgent Action Standard - Cyber Security - 1211 Training

Personnel Training Standard Drafting Team — Nomination Form

Please return this form to sarcomm@nerc.com by June 1, 2006. For questions, please contact Richard Schneider at 609-452-8060 or Richard.Schneider@nerc.net.

Please note this drafting team will likely meet initially the second week of July (Tuesday and Wednesday or Wednesday and Thursday) 2006 to begin drafting the proposed standard. The complete meeting schedule has not been determined yet. It is expected the team will meet several times in 2006 including face-to-face meetings, as well as, meetings facilitated through various remote meeting technologies. **All candidates should be prepared to participate actively at these meetings.**

<table>
<tr><td colspan="3">Name:

Organization:

Address:

Office
Telephone:

E-mail:</td></tr>
<tr><td colspan="3">Please briefly describe your experience and qualifications to serve on the Personnel Training Standard Drafting Team. Candidates should have expertise in one or more of the following areas: development and delivery of system operator training programs, establishment of training and performance metrics, assessment of personnel performance, or organization development. Previous experience working on or applying NERC or IEEE standards is beneficial, but not a requirement.</td></tr>
<tr><td>I represent the following NERC Reliability Region(s) (check all that apply):</td><td colspan="2">I represent the following Industry Segment (check one):</td></tr>
<tr><td>☐ ERCOT</td><td>☐</td><td>1 — Transmission Owners</td></tr>
<tr><td>☐ FRCC</td><td>☐</td><td>2 — RTOs, ISOs, Regional Reliability Councils</td></tr>
</table>

☐ MRO ☐ NPCC ☐ RFC ☐ SERC ☐ SPP ☐ WECC ☐ NA – Not Applicable	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, and Provincial Regulatory or other Government Entities

Which of the following Function(s)[1] do you have expertise or responsibilities:

☐ Reliability Coordinator	☐ Transmission Service Provider
☐ Balancing Authority	☐ Transmission Owner
☐ Interchange Authority	☐ Load Serving Entity
☐ Planning Authority	☐ Distribution Provider
☐ Transmission Operator	☐ Purchasing-selling Entity
☐ Generator Operator	☐ Generator Owner
☐ Transmission Planner	☐ Resource Planner
	☐ Market Operator

Provide the names and contact information for two references who could attest to your technical qualifications and your ability to work well in a group.

Name:	Office Telephone:
Organization:	E-mail:
Name:	Office Telephone:
Organization:	E-mail:

[1] These functions are defined in the NERC Glossary of Terms, which is downloadable from the NERC Web site.

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Princeton Forrestal Village, 116-390 Village Boulevard, Princeton, New Jersey 08540-5731

May 16, 2006

TO: REGISTERED BALLOT BODY

Ladies and Gentlemen:

Announcement:
Drafting Team Nominations; Pre-ballot Reviews; Ballot Pools Open May 15

The Standards Authorization Committee (SAC) announces the following standards actions:

Nominations for Personnel Training Standard Drafting Team Open (May 15–June 1)

The SAC is soliciting drafting team members to draft the personnel training standard. The standard will require that the Reliability Coordinator, Balancing Authority, and Transmission Operator have a training program for real-time system operators. If you are interested in volunteering for this standard drafting team, please submit the nomination form by June 1, 2006.

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Please send questions to Maureen Long at maureen.long@nerc.net, or call 813-468-5998.

Sincerely,

Maureen E. Long

Maureen E. Long
Standards Process Manager

cc: Registered Ballot Body Registered Users
Standards Group
NERC Roster

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. Standard drafting team appointed by the Standards Authorization Committee on June 21, 2006.

Proposed Action Plan and Description of Current Draft:

This is the first posting of the proposed standard and its associated implementation plan for a 30-day comment period, from September 27–October 26, 2006.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments and post a revised standard and implementation plan for a second comment period for 45-days.	November 15–December 29, 2006
2. Respond to comments on the second draft of the proposed standard.	January 15, 2007
3. Obtain the Standards Committee's approval to move the standard forward to balloting.	January 15, 2007
4. Post the standard and implementation plan for a 30-day pre-ballot review.	February 1–March 2, 2007
5. Conduct an initial ballot for ten days.	March 5–16, 2007
6. Respond to comments submitted with the initial ballot.	March 23, 2007
7. Conduct a recirculation ballot for ten days.	March –April 4, 2007
8. Post for a 30-day preview for board.	April 1–30, 2007
9. BOT adoption.	May 2, 2007

A. Introduction

1. **Title:** **System Operator Training**

2. **Number:** PER-005-1

3. **Purpose:** To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System are competent to perform those tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.

4. **Applicability:**

   4.1. Functional Entities:

   4.1.1 Reliability Coordinator.

   4.1.2 Balancing Authority.

   4.1.3 Transmission Operator.

5. **Proposed Effective Date for Regulatory Approvals:** July 1, 2007

B. Requirements

R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct a System Operator job task analysis (JTA). The analysis must be updated when there is a new or revised task or tool. The JTA results shall include a list of company-specific reliability-related tasks assigned to each System Operator position and the following information for each of those tasks: [Risk Factor: High]

R1.1. The conditions under which the task is performed.

R1.2. The actions to be taken in performing the task, including identification of references and tools used in performing the task.

R1.3. Identification of whether the task is performed alone or as part of a team.

R1.4. The criticality of the task with respect to reliability.

R1.5. The frequency of performing the task.

R1.6. The knowledge, skill, and experience needed to perform the task.

R1.7. The criteria for successful performance of the task.

R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall assess the training needs (for the tasks identified in Requirement 1 and the criteria for successful performance of the task identified in Requirement 1.7.) of entry-level or newly hired experienced System Operators.[Risk Factor: Medium]

R3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct a training needs assessment of incumbent System Operator to identify mismatches (for the tasks identified in Requirement 1 and the criteria for successful performance of the task identified in Requirement 1.7.) between actual performance and the criteria for successful performance for each position performing reliability-related tasks identified in R1. (including any contract System Operator or System

Operator performing tasks identified in R1. under delegation agreements) at least once every year. [Risk Factor: High]

R4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have an annual training plan developed from the training needs assessments in R2. and R3. that identifies the topics, anticipated duration of the topic, and target schedule for the following types of training: [Risk Factor: Medium]

R4.1. Entry-level System Operator training to bring entry-level System Operator performance to a minimum acceptable level of competency on all assigned reliability-related tasks.

R4.2. Refresher training to reduce performance gaps of incumbent System Operator.

R4.3. Refresher training to provide incumbent System Operator with practice in performing tasks with high criticality and low frequency of occurrence.

R4.4. Continuing training to provide incumbent System Operator with new knowledge and skill to perform new or revised tasks or to use new tools.

R5. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify that persons developing or delivering training have the following qualifications: [Risk Factor: High]

R5.1. Training development:

R5.1.1. Operating knowledge in the subject matter covered by the training activity.

R5.1.2. Competency in developing training using a systematic approach.

R5.2. Training delivery:

R5.2.1. Competency in training delivery.

R6. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall implement its System Operator training program by providing training to all of its System Operator (including any contract System Operator or System Operator performing tasks identified in R1. under delegation agreements) as follows: [Risk Factor: High]

R6.1. Entry-level training to provide System Operator with the knowledge and skill identified in R2. to meet the associated criteria for successful performance identified in R1.7.

R6.2. Continuing training to reinforce knowledge and skills of incumbent System Operators as identified in the JTA (Requirement 1) that were not covered in Requirement 4.2.

R6.3. Refresher training to eliminate performance gaps identified by the training needs assessments in Requirement 2, and Requirement 3.

R6.4. Continuing training to acquire the knowledge and skills necessary for new or modified tasks and tools identified in R2. and R3.

R6.5. Annual refresher training for incumbent System Operator that includes the use of drills and simulations on tasks that have high reliability-related criticality (as identified in R1.4.) and low frequency of occurrence (as identified in R1.5.) to meet the associated criteria for successful performance identified in R1.7. This refresher training shall include:

R6.5.1. At least 32 hours of emergency operations or system restoration training, simulating the system conditions, operating procedures and communication processes.

R6.5.2. At least one exercise each year shall involve other entities on a sub-regional, regional or interconnection-wide basis, involving all real-time operating positions likely to be involved in the actual event, with each person performing their assigned duties. [Risk Factor: Medium]

R7. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall document the following for each training activity used to support its reliability-related System Operator training: [Risk Factor: Lower]

R7.1. Title of the activity.

R7.2. Training provider.

R7.3. Description of the content covered by the activity.

R7.4. Training method or methods.

R7.5. Tools or reference documents needed for the training.

R7.6. Identification of the task or tasks (identified in R1.), or supporting knowledge or skill (identified in R1.6.) covered by the training.

R7.7. Identification of the conditions under which the associated task is performed (as identified in R1.1.).

R7.8. Identification of any prerequisite training.

R7.9. Objectives and assessments that duplicate the criteria for successful performance identified in R1.7. and mastery of the knowledge and skills in R1.6.

R7.10. Practice in following the steps and using the tools and references identified in R1.2., including practice with others if the task is normally performed as part of a team (as identified in R1.3.)

R8. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall track the progress of each of its System Operator (including any contract System Operator or System Operator performing tasks identified in R1. under delegation agreements) in using training to obtain the knowledge, skill and experience needed to meet the performance criteria specified in R1.7. for the tasks identified in R1. by maintaining the following records: [Risk Factor: Medium]

R8.1. For each reliability-related task identified in R1., the date and method used to assess whether the System Operator's performance meets the criteria specified in R1.7.

R8.2. For participation in each training activity identified under R7., the date and duration of participation in training activities designed to develop their ability to meet the performance criteria in R1.7.

R9. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of its System Operator training program to determine if the training does prepare System Operator to meet the criteria for successful performance as identified in R1.7. and use the results to update the program to meet identified deficiencies, giving consideration to the following information sources: [Risk Factor: Medium]

R9.1. Feedback from trainees to identify areas where the training should be clarified or modified.

R9.2. Results of learning assessments.

R9.3. Post-training workplace performance feedback.

R9.4. Audit results.

R10. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall maintain its System Operator training program so that the information provided to trainees accurately reflects the current operating environment. [Risk Factor: Medium]

C. Measures

M1. Each Reliability Authority, Balancing Authority and Transmission Operator shall have available for inspection, the results of its latest JTA with the details specified in R 1.1. through R1.7.

M2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, the results of its latest training needs analysis that identifies each entry-level or newly hired experienced System Operator's training needs as specified in R2.

M3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, the results of its latest training needs analysis that identifies each incumbent System Operator's mismatches between actual performance and the criteria for successful performance as specified in R3.

M4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, its latest annual training plan as specified in R4.

M5. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection documentation of the qualifications of personnel who developed or delivered System Operator training to show compliance with R5.

M6. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, its training activities for its entry-level System Operator as specified in R6.1.

M7. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, its training records to show that it provided each of its

incumbent System Operators with annual refresher training and continuing training in accordance with R6.2. and 6.4.

M8. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection its training records to show that it provided its incumbent System Operator with training to eliminate performance gaps in accordance with R6.3.

M9. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, training materials used for entry-level training, refresher training, and continuing training that meet the criteria identified in R7.

M10. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, a training record showing the current status of each of its System Operators in meeting the performance identified in R1.7. as specified in R8.

M11. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, the results of its latest annual evaluation of its System Operator training program. (R9.)

M12. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, the latest versions of its System Operator training program to demonstrate that the information in the training materials was updated in accordance with R10.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organization

1.2. Compliance Monitoring Period and Reset

One or more of the following methods shall be used to verify compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The performance monitoring period for all requirements is one calendar year. The performance reset period for all requirements is one calendar year.

1.3. Data Retention

The Reliability Coordinator, Balancing Authority and Transmission Operator shall each have its current, in-force documents available as evidence of compliance as specified in each of the Measures.

If an entity is found non-compliant the entity shall keep information related to the non-compliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

1.4. Additional Compliance Information

None.

2. Violation Severity Levels (To be added with the next draft of the standard)

2.1. Level 1:

2.2. Level 2:

2.3. Level 3:

2.4. Level 4:

E. Regional Differences

None.

Version History

Version	Date	Action	Change Tracking

Implementation Plan — System Operator Training Standard

Background

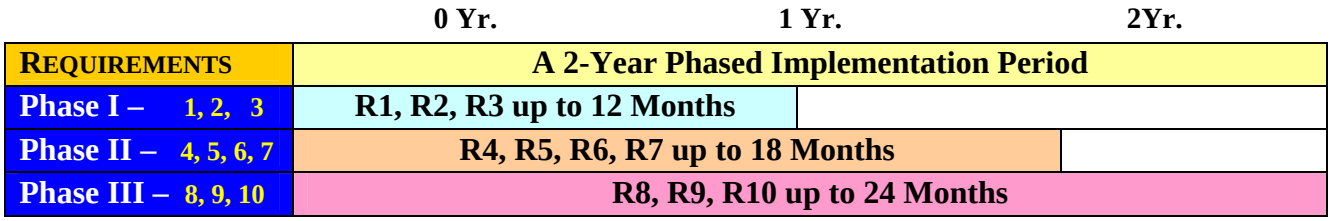
The System Operator Training standard is designed to provide all system operators who work for the Reliability Coordinator, Balancing Authority, and Transmission Operator with training to provide the knowledge and skills needed to perform all assigned reliability-related tasks to a specified level of proficiency. The training provided under this standard includes training for entry-level system operators to bring those system operators to a minimum level of proficiency. Both refresher and continuing training are required for incumbent system operators. Refresher training is aimed at providing practice in performing tasks that are rated as having 'high importance' with respect to reliability, while also having a 'low frequency' of performance. Refresher training is also aimed at closing any gaps between actual and desired performance of individual system operators. Continuing training is aimed at providing incumbent system operators with new knowledge and skill to perform new tasks or use new tools.

The drafting team is developing several reference documents to assist responsible entities in complying with this standard. The reference documents include the following:

- A list of tasks commonly assigned to system operating positions for use in conducting a job task analysis
- Instructions on how to conduct a job task analysis, including guidance on how to establish performance criteria for tasks
- Instructions on how to conduct a training needs analysis suitable for use in determining what knowledge and skills are needed for an entry-level system operator to perform assigned tasks
- Instructions on how to conduct a training needs analysis suitable for use in determining mismatches between desired and actual performance of incumbent system operators
- References that provide guidance on developing training materials

Effective Date

The proposed standard will become effective when adopted by FERC, which is expected to be July 1, 2007. This assumes the standard is approved by its Ballot Pool in April 2007 and is adopted by the NERC Board of Trustees on May 2, 2007. Compliance with the requirements is phased in as follows[1]:



Requirements 1–3	June 30, 2008
Requirements 4–7	December 31, 2008
Requirements 8–10	June 30, 2009

Note: These dates are relative to the final FERC approval date. The standard will go into effect beginning the first quarter after FERC approves the standard.

[1] Note that not all training needs to be implemented by the effective date. If there are no new System Operators, then there is no need to begin using the training designed for entry-level System Operators. However, annual refresher training and remedial training must be provided by the effective date for Requirement 4.

Impact on Existing Standards and Other Standards in Development

When this standard is implemented, the drafting team recommends retiring both PER-002-0 — Operating Personnel Training and PER-004-1 — Reliability Coordination — Staffing.

- PER-002-0 requires the Balancing Authority and Transmission Operator to have a training program, but has no requirements for the Reliability Coordinator to have a training program for its operating personnel. The requirements in PER-002-0 are not written as specifically or as objectively as the requirements in the proposed standard.

PER-004-1 has 5 requirements:

- The drafting team identified Requirement 1 as being duplicated by PER-003-0.
- Requirement 2 requires the Reliability Coordinator's operating personnel to have five days a year of emergency operations training and is duplicated by the proposed standard.
- Requirement 3 requires the Reliability Coordinator's operating personnel to have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas. The job task analysis required as a foundation for the System Operator training program in the proposed standard should identify that this is reliability-related knowledge that a System Operator needs to perform several tasks — and therefore training and an assessment of the System Operator's knowledge in this area will be required under the proposed standard. In addition, one of the purposes of requirement R6.4.2. in this standard is to develop a Reliability Coordinator's knowledge of other entities in the Reliability Coordinator's area.
- Requirement 4 requires the Reliability Coordinator's operating personnel to have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions. The job task analysis required as a foundation for the System Operator training program in the proposed standard should identify that this is reliability-related knowledge that a System Operator needs to perform several tasks — and therefore training and an assessment of the System Operator's knowledge in this area will be required under the proposed standard. In addition, one of the purposes of requirement R6.4.2. in this standard is to develop a Reliability Coordinator's knowledge of other entities in the Reliability Coordinator's area.
- Requirement 5 requires the Reliability Coordinator's operating personnel to pay particular attention on SOLs and IROLs and inter-tie facility limits and requires the Reliability Coordinator to ensure that protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times. There are other standards that require the Reliability Coordinator to operate within SOLs and IROLs and there are other standards that require the Reliability Coordinator to have monitoring capabilities and back up facilities. The Missing Measures and Compliance Elements Drafting Team determined that the language in this requirement was ambiguous and they declined to develop any measures or compliance elements to support the requirement.

Applicability

Every requirement in the proposed standard applies to all Reliability Coordinators, Balancing Authorities and Transmission Operators. The training described in the standard must be provided to all system operators, whether those system operators who work for the responsible entity are entity employees, contract employees or work as system operators for another entity under a delegation agreement. The intent is to ensure that all system operators who perform real-time operating functions for Reliability Coordinators, Balancing Authorities, and Transmission Operators have the knowledge and skills needed to perform all assigned reliability-related tasks to a measurable, acceptable degree of competency.

TASK CHECKLIST: EMERGENCY OPERATIONS

NOTE ON TASKS: This generic list of tasks is intended to be used as a resource to assist with the creation of Job Task Analysis (JTAs). Please note organizations using this list or any other generic resource should customize them to accurately document tasks specific to their worksite.

ITEM#	TYPE OF ACTIVITY	EMERGENCY OPERATIONS TASKS
1	capacity	Request emergency energy upon loss of a resource
2	capacity	Respond to capacity deficiency
3	capacity	Respond to loss of energy resources within allowable regional or pool timeframe
4	capacity	Prepare for a capacity emergency by bringing on all available generation
5	capacity	Prepare for a capacity emergency by postponing equipment maintenance
6	capacity	Prepare for a capacity emergency by scheduling emergency energy purchases
7	capacity	Prepare for a capacity emergency by reducing load
8	capacity	Prepare for a capacity emergency by initiating voltage reductions
9	capacity	Prepare for a capacity emergency by requesting emergency assistance from other systems
10	capacity	Schedule available emergency assistance with as much advance notice as possible given a capacity emergency
11	capacity	Utilize the assistance provided by the Interconnection's frequency bias (*in a capacity emergency*) only for the time period necessary to utilize operating reserves
12	capacity	Utilize the assistance provided by the Interconnection's frequency bias (*in a capacity emergency*) only for the time period necessary to analyze ability to recover using own resources
13	capacity	Utilize the assistance provided by the Interconnection's frequency bias (*in a capacity emergency*) only for the time period necessary to schedule emergency assistance from others
14	freq	Direct corrective actions to correct abnormal frequency
15	load shed	Manually shed load to alleviate system emergency conditions
16	load shed	Following the activation of automatic load shedding schemes, restore system load as appropriate for current system conditions and in coordination with adjacent systems
17	load shed	Following the activation of automatic load shedding schemes, shed additional load manually if there is insufficient generation to support the connected load
18	load shed	Following the activation of automatic load shedding schemes, monitor system voltage levels to ensure high voltage conditions do not develop
19	load shed	Following the activation of automatic load shedding schemes, monitor system frequency to ensure high frequency conditions do not develop
20	load shed	Following the activation of automatic load shedding schemes, monitor the performance of any automatic load restoration relays
21	load shed	Following the activation of automatic load shedding schemes, resynchronize transmission at preplanned locations if possible
22	load shed	Following the activation of automatic load shedding schemes, disable automatic underfrequency relays if system conditions warrant
23	load shed	Direct distribution providers to shed load when required for system reliability
24	load shed	Use manual load shedding to prevent imminent separation from the Interconnection due to transmission overloads or to prevent voltage collapse
25	procedure	Implement emergency procedures.
26	procedure	Notify the Reliability Coordinator of the implementation of its own emergency procedures.
27	procedure	Comply with reliability coordinators' instructions during emergency conditions
28	procedure	Direct implementation of emergency procedures
29	procedure	Maintain knowledge of existing and proposed emergency assistance agreements and contracts
30	procedure	Mandate the sale or purchase of energy to optimize reliability
31	procedure	Respond to system emergencies and frequency deviations to meet local, regional, and NERC DCS requirements
32	procedure	Notify appropriate personnel or departments in event of an emergency

ITEM#	TYPE OF ACTIVITY	EMERGENCY OPERATIONS TASKS
33	procedure	Perform or direct actions such as starting generation, canceling pre-scheduled maintenance, schedule interchange, or shed load to return the system to a secure state
34	procedure	Perform regular testing of emergency procedures to determine preparedness and alertness of shift personnel
35	procedure	Provide emergency services coordination for field personnel
36	procedure	Respond to generation losses, recognizing economic and reliability restrictions to effectively maintain tie-line flows
37	procedure	Respond to requests for emergency assistance from neighboring systems
38	procedure	Declare system emergencies
39	procedure	Develop and/or implement contingency plans when facilities/equipment are forced out of service
40	procedure	Formulate a plan to implement corrective actions when equipment ratings are exceeded or anticipated to be exceeded
41	procedure	Use sub-regional, regional, and NERC hotline to coordinate actions during emergency conditions
42	procedure	Schedule emergency energy when needed and create interchange transaction tags within one hour
43	procedure	Coordinate response to system emergencies
44	procedure	Request emergency assistance from neighboring systems
45	procedure	Assume sole control of designated telecommunication systems for use during an emergency
46	procedure	Implement emergency procedures related to generating resources within a balancing area as directed by the reliability authority
47	restoration	Direct the restoration of the transmission system following a major system outage, load shedding, islanding, or blackout
48	restoration	Ensure adequate protective relaying exists during all phases of the system restoration sequence
49	restoration	Test or simulate system restoration procedures to validate restoration plans
50	restoration	Following a partial or total system shutdown, implement the appropriate provisions and procedures of the system's restoration plan in a coordinated manner with adjacent systems
51	restoration	Following a partial or total system shutdown, arrange for start-up and/or emergency power for generation units as required
52	restoration	Following a partial or total system shutdown, arrange for and utilize emergency (backup) telecommunications facilities as required
53	restoration	Following a partial or total system shutdown, restore the integrity of the Interconnection as soon as possible
54	transmission	Formulate a plan to implement corrective actions when an operating reliability limit violation is anticipated
55	transmission	Determine the cause and extent of transmission system disturbances and interruptions and the impact on other facilities
56	transmission	Apply relief measures as necessary to permit re-synchronizing and reconnecting to the Interconnection when separated from the Interconnection
57	transmission	Use manual load shedding to prevent imminent separation from the Interconnection due to transmission overloads, or to prevent voltage collapse
58	transmission	Implement load shedding as directed by a transmission operator
59	transmission	Identify and take appropriate actions when partial or full system islanding occurs
60	voltage	Implement voltage reductions to alleviate system emergency conditions
61	voltage	Identify and take appropriate actions when a partial or full system voltage collapse occurs

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☒ **SERC**	☒	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Southern Company Transmission

Lead Contact: **Roman Carter**

Contact Organization: **Southern Company Transmission**

Contact Segment: **1**

Contact Telephone: **205.257.6027**

Contact E-mail: **jrcarter@southernco.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Mike Oatts	Southern Co. Transmission	SERC	1
James Ford	Southern Co. Transmission	SERC	1
Marc Butts	Southern Co. Transmission	SERC	1
J.T. Wood	Southern Co. Transmission	SERC	1
Jim Busbin	Southern Co. Transmission	SERC	1
Randy Castello	Mississippi Power Co.	SERC	3
Steve Corbin	Southern Co. Transmission	SERC	1
Roger Green	Southern Co. Generation	SERC	5
John Ciza	Southern Co. Generation	SERC	6

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: While we agree with a Job Task Analysis being performed (Job Description), PER-002 already provides sufficient direction to assure entities develop quality Training Programs and are staffed with "adequately trained personnel".

   Requirement 1.3 is too granular. For instance, certain tasks can be performed as part of a team at times or alone at times.

   Criticality of the task in 1.4 with respect to reliability cannot always be correctly assessed. For example, the consequences of not performing TTC calculations to ensure that TTC capability is accurate may or may not have a critical affect on the system.

   Requirement 1.5 is too specific-Some tasks are performed continuously while other tasks are asking the system operator to perform studies for emergency outages. Another example is the notification to affected parties about a time error correction taking place. The frequency of these tasks sometimes can not be predetermined and do not reoccur on a steady cycle. A final task that can't have a predetermined frequency is notifications of problems or expected problems in system conditions. These simply happen and you respond as quickly as possible.

   Recommend removing Requirements 1.3, 1.4, and 1.5.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: We agree that training needs analysis should be done but NERC should focus on assuring training takes place and not on the process.

   It is unnecessary to differentiate between an "entry-level" and a "newly hired experienced" System Operator. Besides the fact that it is unclear what these terms are intended to represent (one is a job family level term and the other one trying to reflect a degree of experience independent of level), the training considerations (and terms) should focus on initial and refreshing/reinforcing training. If this approach is taken then the experience level or incumbency is irrelevant. For a new operator all training would be initial. For an experienced "incumbent" operator, some would be "refresher/reinforcing" and some might be "initial" for newly assigned tasks.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☐ Yes

   ☒ No

   Comments: Each entity should be left to determine the training needs of its personnel. See comments for question #2.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments: Each entity should have training goals, schedules and an overall plan to address how operator training is to be accomplished

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: Recommend that NERC leave the levels of competency to the individual Utility to decide what is an acceptable level. Not all electrical systems are the same.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: We could agree, if under 7.10, that Req. 1.3 be removed as recommended in our earlier commments.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The benefit gained from required use of a simulator is difficult to quantify.

   Table-top exercises and drills can be just as effective at a significiantly reduced cost.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: While we agree training records should be maintained, the criteria defined for "each" task identified in the JTA would be overly burdensome. The current Reliability Exam identifies 203 operator tasks. The focus should be on the performance gaps or developmental needs identified in the gap analysis. This is not what the document states. This needs to be clarified. We do not need to track every task of every operator in the JTA.

   Perhaps the training records is best contained in the employee's performance appraisals under accomplishments (tasks mastered) and developmental needs (tasks needing improvement).

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

☐ No

Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: Under Requirement 1, one would not expect an imminent cascading outage to occur due to a job task analysis (JTA) not being performed. Not having a list of company-specific reliability-related tasks for a system operator is a problem, but the system operator could have 30 years experience and it's the experience which prevents cascading outages and not specifically the JTA. Recommend Medium risk factor.

    Under Requirement 3, not having a training needs assessment may not be a wise action on the part of a RC, BA, or TOP, but would not conducting a training needs assessment directly lead to cascading outages if the assessment did not exist? Recommend Medium risk factor.

    Under Requirement 5, if the system operator trainer is very experienced with their duties, how will not having a certain level of competency directly result in cascading outages, i.e, high risk factor rating. What is NERC's acceptable level of competency- NERC certified, Master's Degree, 10 years as an instructor? Recommend Medium risk factor.

    Under Requirement 6, same comments as above. Recommend Medium risk factor.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: Under Measurement 5, it says you must have documentation of the qualifications of the trainer, but Requirement 5 doesn't mention what would be an acceptable level of competency. Recommend allowing each Utility the ability to determine what is the acceptable level of competency.

    Measurement 1: Recommend that R1.3, R1.4, and R1.5 be removed.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☐ Yes

☒ No

Comments: Southern does not believe the proposed standard is necessary, especially as written. Therefore, we do not believe an Implementation plan is needed.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☒ Yes

    ☐ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: Southern Company does not believe this Standard is necessary since PER-002 could be revised to include certain components of this proposed standard. However, if the development of this standard continues, we make the following comments:

    Requirement 4 is essentially a duplicate of PER-002, Requirement 2.
    Requirements 4.1-4.4 are essentially duplicates of PER-002, Requirements 3.1-3.4.
    Requirement 5.1 and 5.2 are very close to PER-002, Requirement 3.4.
    If you remove these duplications, the SDT may not be left with enough substance to build a standard around.

    Under Requirement 1, recommend changing the name of System Operator job task analysis to System Operator Job Description.

    Job Performance Appraisals should be an acceptable method for meeting Requirement 8.1.

    Does the 32 hours of emergency operations training specified in Requirement 6.5.1 count toward the 5 days of training required for PER-002, Requirement 4?

    The primary emphasis of this standard seems to rely on the process and not about measuring whether or not operators are properly training.

    R5 - The term "systematic approach" is used but no direction or expectation is provided in the standard on what is acceptable.

    R6.5.2 - The requirement expressed here is too prescriptive and in some cases probably not practical. If this requirement is ultimately considered appropriate, it should be done as part of EOP-005 R6 and not inserted here as part of a general training standard. The same argument could be made for R6.5.1 as well.

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Please: Enter text only, with no formatting or styles added.
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Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Ron Gunderson	
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Telephone:	(402) 845-5252	
E-mail:	rogunde@nppd.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☒ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: We agree that these are things that are generally considered when doing a task analysis. We're not sure that they all must be done for each task, which is what your question asks. This is good for a template for a training program task analysis. If this is too prescriptive, an unitended side effect would be for entities to shorten their task list so they can meet all the sub-requirements. The primary requirement should be to have a training program. Also, there is no way that doing a task analysis differently puts the Interconnection at risk of cascading, which is what the High Risk assignment implies. As a side note, the industry still needs to resolve and clarify the risk definitions. The draft standard is an example of people confusing importance with risk.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: There would also be some recurring or refresher requirements. However, it may be that some organizations won't have new operators. The training program should have a goal of having skilled operators. There should be one training program, it doesn't have to be overly prescriptive.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: The scope of things mentioned should generally be considered as part of an overall plan. We agree with the question, but this doesn't seem to line up with the requirement.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

   Comments: We agree with a need for a general annual review of the overall program. While each operator should have a few specific items on which they should include in

their overall training goals, there does not have to be a separate plan for each individual.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☒ No

   Comments: While a trainer needs to understand the material presented, this requirement implies a second layer of administration to keep track of the qualifications of the trainer. This requirement needs to line up with the requirements of the CEH program. This also is rated as a high risk requirement, which is inconsistent with the definition.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The items list in R7 are typically outlined in skills or task-based training and are appropriate as a guideline, but appear to be too prescriptive. There are other valid training activities that wouldn't follow this format. This also needs to line up with the CEH program.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: Your question asks about the simulator's use during drills and exercizes. We agree that all certified operators should have some simulation based training (it could be a generic simulator). While nice to use a simulator during excerises, the drill should not be a slave to the tool. For example, very productive restoration excercises can be done without all participants simultaneiously using simulator. There are other very imporant aspects of drills (testing procedures and communications).

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☒ No

   Comments: We agree with "should", but R8 says "shall" and identifies it as a medium risk requirement. The design of an item in a training program (or lack thereof), does not put the Interconnection at risk of cascading.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☒ No

   Comments: We agree with "should", but R9 says "shall" and identifies it as a medium risk requirement. The design of an item in a training program (or lack thereof), does not put the Interconnection at risk of cascading. Requirements 4 and 9 could be combined and simplified (provide annual review and a summary of changes).

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

☒ Yes

☒ No

Comments: Your question does not mirror R10. Yes, material should be reviewed. R10 appears to be something that can not be measured, with the exception of applying it after the fact when the operator didn't have perfect knowledge. Also, the measure implies that even training that will not be offered in a given year must be annually updated. This is another requirement that should be aligned with the CEH program.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: We agree training is very important. However, we cannot identify any of the items in this standard should be classified above a lower risk. It's the direct actions of the operators that can put the interconnection at risk. Missing an item (or varying) in the design of a training module does not put the Interconnection at risk of cascading.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: The measures are too complex. There are already requirements that say what training needs to be provided. Over-specifiying how the training is delivered and the detailed design of the program seems to go too far. There are probably four core requirements in the standard. The measures and compliance monitoring should be simplified (some overall score for the requirements that are met).

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: This needs to be simplified. We're not sure why there would be spot checks and triggered investigations for training. This standard can be evaluated during the normal audit and self-certification cycle.

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☒ Yes

    ☒ No

    Comments: We agree that some of the other training design requirements should be retired if this standard is adopted. This standard should be simplified prior to implmentation. Also the two-year implementation plan might be too short to put all this detail in a training program.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments: Some workshops and templates or examples of what meets the standard would be useful.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: More time will be needed if the standard is too prescriptive. Most entities will have to put material together for hundreds of tasks and training activities.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: The standard should be boiled down to the core training requirements (develop a program, deliver training [including and consistent with CEH], record and assess progress, adjust the program annually). It would be simpler if this standard were measured globally (3 of the 4 requirements with no deficiencies is passing, minor deficieiencies in 2 requirements is level 1, etc.).

    We agree that training is very important, but importance is not the same as the risk. Depending on how this standard is read, there appear to be 40 different things for which non-compliance can be assessed (and almost all of them are rated at medium or high risk). Deviating from a template training design does not put the Interconnections at risk of cascading. The standard as a whole should be evaluated at a lower risk.

    This standard should absorb the 32 hours of emergency training.

    Alternatively, this standard could lay out a way to evaluate "certified training providers".

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs, ISOs, Regional Reliability Councils
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	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: SCE&G ERO Working Group

Lead Contact: **Sally Ballentine Wofford**

Contact Organization: **South Carolina Electric & Gas Company**

Contact Segment: **Transmission**

Contact Telephone: **803-217-9343**

Contact E-mail: **sbwofford@scana.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Lee Xanthakos	South Carolina Electric & Gas Co	SERC	1
Hubert C. Young	South Carolina Electric & Gas Co	SERC	3
Richard Jones	South Carolina Electric & Gas Co	SERC	5
Henry Delk	South Carolina Electric & Gas Co	SERC	
Jonh T. Blalock	South Carolina Electric & Gas Co	SERC	
Dan Goldston	South Carolina Electric & Gas Co	SERC	
Todd Johnson	South Carolina Electric & Gas Co	SERC	
Jay Hammond	South Carolina Electric & Gas Co	SERC	
Phil Kleckley	South Carolina Electric & Gas Co	SERC	
Pat Longshore	South Carolina Electric & Gas Co	SERC	
Simon Shealy	South Carolina Electric & Gas Co	SERC	
Bob Smith	South Carolina Electric & Gas Co	SERC	
Andy Bowden	South Carolina Electric & Gas Co	SERC	
Arnie Cribb	South Carolina Electric & Gas Co	SERC	
Marion Frick	South Carolina Electric & Gas Co	SERC	
Ernie Gibbons	South Carolina Electric & Gas Co	SERC	
Jerry Lindler	South Carolina Electric & Gas Co	SERC	
Wayne Stuart	South Carolina Electric & Gas Co	SERC	
Brad Stokes	South Carolina Electric & Gas Co	SERC	
Shawn McCarthy	South Carolina Electric & Gas Co	SERC	
Ernie Mehaffey	South Carolina Electric & Gas Co	SERC	
Rick Lytle	South Carolina Electric & Gas Co	SERC	

	South Carolina Electric & Gas Co	**SERC**	
	South Carolina Electric & Gas Co	**SERC**	

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments: Job task analysis are subjective to whomever is developing these tasks and subject to interpretation of the standard and reference document which is currently not available. This approach results in lack of continutity across the industry which should be a goal specifically in an effort to audit compliance.
   The Natural Gas Transmission Industry has struggled with a a similar standard referred to as the Operator Qualification Rule (49 CFR 192.801) on a larger scale and lessons on implementation can be learned from their experience. The problem of lack of conformity between operating companies showed up in compliance audits specifically in the area of what was a qualifing task and the name of that task. What this industry did after a few years because of the confusion and inefficent program management is develop a list of minimum tasks that applicable parties should address and provide details related to that task as a minimum comparable to those requested in R1.1-R1.7. If one of these tasks did not apply to a applicable party, they simply addressed it in their plan and provided supporting information. Another benefit of conformity, it allows plans to be develop and adoption by applicable operating parties across mutiple systems. Additionally, personnel transferring from one applicable party to an other can provide evidence of their past performance to it as it relates to the tasks and begin work which saves time/money and gets qualified personnel working.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: If a list of reliability related tasks and supporting information is provided, then this processes is manageable. Lack of providing a list of tasks and requirements related will add confusion and unneeded complexity to the process.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: If a list of reliability related tasks and supporting information is provided, then this processes is manageable. Lack of providing a list of tasks and requirements related will add confusion and unneeded complexity to the process.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments: Annual training for System Operators is agreeable. To develop an individualizeed training program to any level of detail will be difficult to manage. However, if a standard list of applicable reliability related tasks are provided then individual training becomes mute. All operators will be required to demonstrate core competantancy. It would be left to management and the employee of the steps necessary to prepare an employee to qualify for applicable reliability related tasks.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: It is impractical at times for the trainer to be the subject matter expert or knowledge on the subject matter, but may have individual(s) present to address questions or concerns which should be allowed. It allows the best of both worlds a good trainer and knowledgeable parties.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: What does the word "mastery" in this context mean? Are we saying anything less than a perfect score does not meet this requirement or is "proficient" a better word choice.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with “hands-on” experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: It should not be part of the standard to require every company to use company-specific simulation for some drills. It should be left to the company to determine how it is most practical to meet the language "use of drills and simulation."

8. Do you agree that there should be a record of each system operator’s training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments: What does the word "mastery" in this context mean? Are we saying anything less than a perfect score meets this requirement or is "proficient" a better word choice.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments: What constitutes an "evaluation?"

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☒ No

    Comments: Is this not already covered in R5.1.2 implicity? This proposed requirement is fundamental to training and does not need to be required.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: We do not believe the risk factor of "High" for R5 is appropriate due to the fact that quality training can be provided by a trainer on the material and subject mater experts to address questions or concerns. This should be ranked as "Medium."

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: A list of reliability related tasks and performance expectations should be agreed upon then measures can be developed. The definition of "reliability related task" and agreement of the industry of minimum requirements as associated with these task as it applies to R1.1 through R1.7 should be provided. Also the word "mastery" should be revised to "proficient."

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: Twelve months is not enough time unless a standard list of " reliability related task" and agreement by the industry of minimun requirments as associated with these task as it applies to R1.1 through R1.7 can be provided.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

    ☒ No

Comments: A field test should be required to provide critical feedback to the industry which should save both time and money in the implementation phase and improve the compliance and audit process.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: Twelve months is not enough time unless a standard list of " reliability related task" and agreement of the industry of minimun requirments as associated with these tasks as it applies to R1.1 through R1.7 can be provided.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: A standard list of reliability related tasks with corresponding minimum requirements should be developed for R1.1 through R1.7 to allow the applicable parties to prevent unnecessary expenditures and poor use of resources and time. This would benefit all parties involved. It also should allow smaller organization to contract with third parties to write plans for them if necessary using a standard approach. It should allow all of us to take the guess work out of what is intended by the requirements.

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
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Organization:		
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NERC Region		**Registered Ballot Body Segment**
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Group Comments (Complete this page if comments are from a group.)

Group Name: Transmission & Generation Operations

Lead Contact: **Mike Pfeister**

Contact Organization: **SRP**

Contact Segment: **1**

Contact Telephone: **602-236-3970**

Contact E-mail: **mjpfeist@srpnet.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Mark Avery	SRP	WECC	1
Mike Gentry	SRP	WECC	1
Gary Nolan	SRP	WECC	1

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: Some direction on assessing criticality is warranted here. In R1.4, how does one define the "Criticality of the task with respect to reliability"? What are the criteria? How can there be consistency among individual companies if there aren't any guidelines? It would seem a task is either critical or it is not. Who determines the shades of grey that R1.4 imbues in its present wording? In order to fulfill the purpose of this standard, ensuring that operators are competent, all tasks that are part of the job should be assessed and trained to as needed. Many of these tasks aren't critical to reliablility when looked at individually yet they are required to perform the job. When it comes to sanctions, criticality should be a key consideration.

   Entities should be required to identify only the tasks that are critical to reliability. These tasks can then be documented and training provided based on an operators need to be trained. The listed R1.1 through R1.7 for each of what could be dozens of tasks that may or may not be critical to relaibility isn't necessary and does not justify the resources required to meet this requirement. Our operators perform numerous tasks that are not critical to reliability and should not be subject to this requirement.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: Partially agree. The means propoposed to assess the training needs of an incumbent operator would appear to require simulating each and every task identified in R1 and grading every operator on their performance of each every year. This would seem an extremely time intensive process to just identify what you then plan to train them on. Is that truly the intent of this requirement? Entry Level/newly hired operators should not be required to have a needs analysis. These operators can be assumed to need all of our training curriculum. An analysis should be done periodically for incumbent operators. R1 does state that JTA should be reliability-related but it does not say critical-to-reliability. the way it is stated allows for a reasonably short list.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☐ Yes

   ☒ No

Comments: If the training needs analysis is done properly, continuing training and refresher training needs will be identified and planned for. With this in mind is it truly necessary to keep the current wording of R4.2-R4.3?

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

   Comments: We partially agree that this is a helpful planning tool and time permitting, everyone should have one. But does requiring this level of detail on a training plan increase reliability? Does not having it decrease reliability or an operator's skill level? With the dynamic nature of the industry, training plans with this much detail are only educated guesses at best. Should we penalize an entity for not having one? No. Do we penalize them if it doesn't turn out to be accurate? Certainly not. From an audit or compliance standpoint, who is to say that the training plan for employee X is satisfactory or not? What sort of consitent guidelines will be applied by an audit team? How does the drafting team view a "training plan". Does a training plan define targets and goals or is it more binding than that? There should be some leeway for contingencies and changing training needs.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☒ No

   Comments: Who decides what is an acceptable level of knowledge of the subject matter? Who decides who is competent in developing training or in delivering training material? With no established parameters, enforcement of this requirement will be subjective and arbitrary. It is doubtful that an entity would spend the time and resources to train personnel with a trainer that wasn't competent. This situation would not be acceptable to most entities no matter what the NERC requirements are. If this remains a requirement, it will amount to no more than a rubber stamp of trainers qualifications since this is impossible for NERC or a Compliance Review team to determine with no criteria for "competent" or for "qualifications". What works for one company may not work for another. DOE Good Practices place this responsibility with line managment. It is probably OK to let each company establish who is responsible to make the determination. Ultimately the entity (BA, TO, RC) will be held to the requirement. Some quantification of the qualifications in R5 may help apply consistency among companies and provide objective criteria for compliance auditors.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Partially agree. R6.5.1 needs to state "generic" simulator. Since most entities do not have simulators for their own systems, the generic simulator needs to be an option for this emergency training.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: This implies that an annual assessment of job task mastery would be conducted. Then you would be requiring records of training delivered to fill performance gaps from that annual assessment. In theory, these records would have to be exclusive of your training records that keep track of when a class can be retaken for credential maintenance, which is not annually. You would be chasing two separate and unequal targets: performance based training versus time sensitive credential maintenance education. One supports reliability. The other looks good on paper. Doing both simultaneously is an administrative nightmare. This requirement forces entities to administer two separate training programs for each operator. One program for CEH's and maintaining NERC Certification and another independent program to meet the R8 requirement. This is unnecessary. Entities should be self compliant in determining operators performance without subjecting them to the documentation of R8.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

☒ Yes

☐ No

Comments: It is a worthwhile target. I would hope that some provision for edits or correction notes during a class could be allowed. I would hate to see this requirement prevent the delivery of needed training if resources are constrained, which can happen with any size training department.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☒ Yes

    ☐ No

    Comments:

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: Any of the Measures that only include showing documentation or a record without any regard to what that documentation should include (e.g. qualification of training personnel) does not provide an objective and impartial measurement. Any measure that only requires providing of documentation with no further regard to accuracy or effectiveness is simply a requirement to produce, maintain and update paperwork. This is further stress on entities resources and manpower for nothing more than a cursory look by s Compliance Review team. Either make the measurement have more "teeth" or don't include it at all.

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: The process of Triggered Investigations needs to be further refined and defined. One entity could cause another entity a great deal of work and cost by submitting multiple complaints or allegations. What if any recourse does the accused party have available to them? There should at least be an appeal process. Who is allowed to call for a Triggered Investigation? This section is too vague and could become onerous.

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference: Is this standard the proper place to insert the WECC CEH requirement of 10 CEH of WECC-specific topics every 2 years?

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: The sheer volume of documentation that this Standard will require will take a lot of time. Many entities are already struggling to meet the training hour requirements. This would further tax resources that are already fully subscribed. The implementation plan is much too aggressive and should be extended to give entities

time to prepare for these requirements. At a minimum the implementation plan should consider the burden expected by the new standard for support personnel.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: See comments on # 15.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: This standard will require more Staff to meet requirements thereby increasing the cost of providing power to our customers with little benefit for these customers.

    Requirement 1 - "maintain" may be a better choice that "conduct" a System Operator JTA...

    Requirement 5.1 and 5.2 are truly just headings (not requirements) and should be eliminated. The others in this section (R5.1.1, R5.1.2, and R5.2.1) could be renumbered to R5.1-R5.3.

    It may be beneficial to define some terms associated with this standard. What is meant by "critical task", "training plan", and other intermediate levels of tasks?

    This standard was reviewed by a Transmission Operations Manager, Generation Operations Manager, Training Supervisor, and 2 Training Analysts. While some effort was made to arrive at consensus, some variety was left in tact for the drafting team to consider. It may be more beneficial to obtain a variety of perspectives without too many edits for the sake of maintaining a unified voice from one company. The drafting team needs to see the variety of perceptions as individuals read through this standard.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

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Group Comments (Complete this page if comments are from a group.)

Group Name: Midwest ISO Stakeholders' Standards Collaboration Group

Lead Contact: **Terry Bilke**

Contact Organization: **Midwest ISO**

Contact Segment: **2**

Contact Telephone: **317/249-5463**

Contact E-mail: **tbilke@midwestiso.org**

Additional Member Name	Additional Member Organization	Region*	Segment*
Dave Acton	Alliant Energy	MRO	1
Bobbi Welch	American Transmission Company	RFC*	1
Jim Cyrulewski	ITC	RFC	1
Michelle Schlossberg	MGE	MRO	6
Roderick Conwell	IPL	MRO	1

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: We agree that these are things that are generally considered when doing a task analysis. We're not sure that they all must be done for each task, which is what your question asks. This is good for a template for a training program task analysis. If this is too prescriptive, an unintended side effect would be for entities to shorten their task list so they can meet all the sub-requirements. The primary requirement should be to have a training program. Also, there is no way that doing a task analysis differently puts the Interconnection at risk of cascading, which is what the High Risk assignment implies. As a side note, the industry still needs to resolve and clarify the risk definitions. The draft standard is an example of people confusing importance with risk.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: There would also be some recurring or refresher requirements. However, it may be that some organizations won't have new operators. The training program should have a goal of having skilled operators. There should be one training program, it doesn't have to be overly prescriptive.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: The scope of things mentioned should generally be considered as part of an overall plan. We agree with the question, but this doesn't seem to line up with the requirement.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

   Comments: We agree with a need for a general annual review of the overall program. While each operator should have a few specific items on which they should include in

their overall training goals, there does not have to be a separate plan for each individual.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☒ No

   Comments: While a trainer needs to understand the material presented, this requirement implies a second layer of administration to keep track of the qualifications of the trainer. This requirement needs to line up with the requirements of the CEH program. This also is rated as a high risk requirement, which is inconsistent with the definition.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: The items list in R7 are typically outlined in skills or task-based training and are appropriate as a guideline, but appear to be too prescriptive. There are other valid training activities that wouldn't follow this format. This also needs to line up with the CEH program.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: Your question asks about the simulator's use during drills and exercizes. We agree that all certified operators should have some simulation based training (it could be a generic simulator). While nice to use a simulator during excerises, the drill should not be a slave to the tool. For example, very productive restoration excercises can be done without all participants simultaneously using a simulator. There are other very imporant aspects of drills (testing procedures, plans and communications).

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☒ No

   Comments: We agree with "should", but R8 says "shall" and identifies it as a medium risk requirement. The design of an item in a training program (or lack thereof), does not put the Interconnection at risk of cascading.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☒ No

   Comments: We agree with "should", but R9 says "shall" and identifies it as a medium risk requirement. The design of an item in a training program (or lack thereof), does not put the Interconnection at risk of cascading. Requirements 4 and 9 could be combined and simplified (provide annual review and a summary of changes).

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

☒ Yes

☒ No

Comments: Your question does not mirror R10. Yes, material should be reviewed. R10 appears to be something that can not be measured, with the exception of applying it after the fact when the operator didn't have perfect knowledge. Also, the measure implies that even training that will not be offered in a given year must be annually updated. This is another requirement that should be aligned with the CEH program.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: We agree training is very important. However, we cannot identify any of the items in this standard should be classified above a lower risk. It's the direct actions of the operators that can put the interconnection at risk. Missing an item (or varying) in the design of a training module does not put the Interconnection at risk of cascading.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: The measures are too complex. There are already requirements that say what training needs to be provided. Over-specifiying how the training is delivered and the detailed design of the program seems to go too far. There are probably four core requirements in the standard. The measures and compliance monitoring should be simplified (some overall score for the requirements that are met).

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: This needs to be simplified. We're not sure why there would be spot checks and triggered investigations for training. This standard can be evaluated during the normal audit and self-certification cycle.

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☒ Yes

    ☒ No

    Comments: We agree that some of the other training design requirements should be retired if this standard is adopted. This standard should be simplified prior to implmentation. Also the two-year implementation plan might be too short to put all this detail in a training program.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments: Some workshops and templates or examples of what meets the standard would be useful.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☐ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: More time will be needed if the standard is too prescriptive. Most entities will have to put material together for hundreds of tasks and training activities.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: The standard should be boiled down to the core training requirements (develop a program, deliver training [including and consistent with CEH], record and assess progress, adjust the program annually). It would be simpler if this standard were measured globally (3 of the 4 requirements with no deficiencies is passing, minor deficiencies in 2 requirements is level 1, etc.).

    We agree that training is very important, but importance is not the same as the risk. Depending on how this standard is read, there appear to be 40 different things for which non-compliance can be assessed (and almost all of them are rated at medium or high risk). Deviating from a template training design does not put the Interconnections at risk of cascading. The standard as a whole should be evaluated at a lower risk.

    This standard should absorb the 32 hours of emergency training.

    Alternatively, this standard could lay out a way to evaluate "certified training providers".

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Terry L. Blackwell	
Organization:	Santee Cooper	
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E-mail:	tlblackw@santeecooper.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☒ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☒	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Santee Cooper

Lead Contact: **Tom Abrams**

Contact Organization: **Santee Cooper**

Contact Segment:

Contact Telephone: **843-761-8000 ext. 5201**

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Additional Member Name	Additional Member Organization	Region*	Segment*
Glenn Stephens	Santee Cooper	SERC	
Rene' Free	Santee Cooper	SERC	
Kristi Boland	Santee Cooper	SERC	

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: Does R1 require a JTA for all company-specific reliability-related tasks, or only for those tasks judged by a company to warrant a JTA? Does R1 require the JTA to be revised for all new or revised tasks or tools? Is the reference document defining how a JTA is conducted needed to understand the requirements and expectations of this standard and the impact of the associated one year implementation plan for R1-3?.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

Comments: Training requirements for newly-hired operators can be vastly different from one operator to another. For example, one newly-hired operator may have a background in substation work with knowledge and skills that are applicable to operators while another may have no experience at all. Does the requirement permit a company to determine the training needs of a new hire from a standard JTA and customize training requirements for the employee, or does this requirement imply that a JTA would have to be conducted and established for every new hire?

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: However, we do not believe this requirement should be applicable to all new tasks or tools. For example, if tagging is modified such that the action on the part of the operator changes in a minor way, would this require a modification to the JTA and accompanying training plan?

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

Comments: An annual training plan for all operators within the company is fine. However, an annual training plan for each individual operator is not feasible. Once an operator becomes a system operator they should be at a certain level of competency such that individulized training is not needed. Too much individualized training may be an indication of a poor performing operator that is not compatible with the job.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: Will the company be permitted to define competency and the appropriate level of operating knowledge referenced in R5, or will the criteria for these be established by an external entity? If the critieria is established by an external entity, would an SME be permitted to provide training under the supervision of an individual "qualified" by the criteria? If the criteria is established by an external entity, should it be included in the standard?

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: If the training is NERC Approved, the ILA for the training activity should be sufficient documentation.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: It should not be part of the standard that every company utilize a company-specific simulator. The wording "the use of drills and simulations" is fine.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: Evaluations by supervision and management would identify areas that need improvement. Once an operator becomes a system operator they should be at a certain level of competency such that individulized training is not needed. Too much individualized training may be an indication of a poor performing operator that is not compatible with the job.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

Comments: It is impractical to evaluate the risk factors until we have a clear understanding of the Requirements in this standard.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: It is impractical to evaluate the measurements until we have a clear understanding of the Requirements in this standard.

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

Comments: It is impractical to evaluate the Compliance Monitoring section until we have a clear understanding of the Requirements in this standard.

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: Twelve months may not be a reasonable length of time for many companies depending on the expectations of a JTA and whether it is applicable to all tasks or tools or changes to all tasks and tools. The Phase II and Phase III implementation dates may be ok if the first implementation date for the JTA is extended significantly.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

    ☒ No

Comments: A field test may provide critical feedback in determining realistic implementation dates, requirements, and measures.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: Refer to response on 15.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: The NERC CE Program is a good program for the industry. It is requiring additional training for the system operators in a well structured manner. Interpretations of this standard that do not permit flexibility for companies to apply judgement to the overall implementation of their training programs and associated analyses would result in this standard being overly prescriptive

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs, ISOs, Regional Reliability Councils
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Duke Energy PER-005 Comments

Lead Contact: **Tom Pruitt**

Contact Organization: **Duke Energy**

Contact Segment: **1**

Contact Telephone: **704-382-4676**

Contact E-mail: **tvpruitt@duke-energy.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Carolyn Wilson	Duke Energy	SERC	1
Steve Jones	Duke Energy	RFC	1
Larry Hartig	Duke Energy	RFC	1
Rick Porter	Duke Energy	RFC	1
Jim Hall	Duke Energy	RFC	1
Jeff Baker	Duke Energy	RFC	1
Mark Thiemann	Duke Energy	RFC	1
Nancy DeLeon	Duke Energy	SERC	1

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: We agree that these are things that should be collected when doing a task analysis, which is what your question asks. This is a good for a template for a training program task analysis. However, the question presumes that a JTA is needed to have an effective training program. A JTA dictates that each task that each job function performs be documented in detail. This is an enormous amount of work. Additionally, in a dynamic operational environment where decision making is constant and conditions are changing, tasks are not prescribed.The primary requirement should be to have a training program. JTAs are a good, but not the only, way to establish a baseline for an effective training program. This is too prescriptive, and may lead to entities developing abbreviated task lists solely to meet all the sub-requirements.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: Requirement 2 relies on the successful completion of R1's JTA requirement, which would be very difficult and ever changing. There should be one training program, with the goal to have skilled operators.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: Requirement 3 is also contingent on the successful completion of R1's JTA requirement. This question does not seem to line up with the requirement. Why not replace the requirement with the rephrasing of this the question as a statement?

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

Comments: The overall program should be reviewed annually. While each operator should have a few specific items on which they should include in their overall training goals, there does not have to be a separate plan for each individual.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☒ No

   Comments: While a trainer needs to understand the material presented, this requirement implies a second layer of administration to keep track of the qualifications of the trainer. This requirement needs to line up with the requirements of the CEH program. How would you determine or measure competency in development and delivery of training? Who would be your trainers?

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The items listed in Requirement 7 are appropriate as a guideline, but are too prescriptive. There are other valid training activities that do not match this format. This also needs to line up with the CEH program. Individual Learning Activity required by NERC for an approved continuing education hour has the requested information in this requirement.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Yes, the key word being *some*. certified operators should have some simulation based training (generic or specific simulator), but training activities should not rely on any one tool or method exclusively.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments: These requirements are being done as part of the Continuing Education program. Individual Learning Activity required by NERC for an approved continuing education hour has the requested information in this requirement. Why not have a single requirement simply to adhere to the Continuing Education program?

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments: Is an evaluation of the training program to be able to train to a JTA that is changing (i.e. this has the potential of chasing a moving target)? Requirements 4 and 9 could be combined and simplified (provide annual review and a summary of changes).

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

☐ No

Comments: Yes, material should be reviewed. Here again the question does not match the requirement referenced. Requirement 10 appears to be something that cannot be effectively measured, with the exception of applying it after the fact when the operator didn't have perfect knowledge. In addition, the measure implies that even training that will not be offered in a given year must be annually updated. This is another requirement that should be aligned with the CEH program.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: Training is obviously very important. However, none of the requirements in this standard should be classified above a lower risk. Direct actions of operators can put the interconnection at risk. Missing an item (or varying) in the design of a training module does not directly put the Interconnection at risk of cascading. We must differentiate between risk and importance. Deviation from a template training design does not put the Interconnections at risk of cascading. The standard as a whole should be evaluated at a lower risk.

12. Do you agree with the Measures in the proposed standard?

    ☒ Yes

    ☐ No

    Comments: Yes, the measures, although complex and interdependent, match the requirements as drafted. However, most, if not all, of the requirements need work which, in turn, will cause the measures to be revised accordingly.

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: Not completely, no. Compliance monitoring should be consistent across the regions.

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference: If the standard is not too detailed and prescriptive, no regional differences will be needed.

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: In the current draft, the implementation plan is too short. If the requirements are re-written to be less prescriptive and detailed, a two year plan may be workable.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments: Yes, but for a different reason -- the decision on a field test should be made on a more mature draft of the standard. The comments presented here anticipate a significant change in the next draft of this standard.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: In the current draft, the implementation plan is too short. If the requirements are re-written to be less prescriptive and detailed, a two year plan may be workable.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: The purpose of this standard is to ensure system operators are competent; however, the standard fails to ensure or measure competency. NERC certification, continuing education requirements, recommended training topics, and training activities approved by NERC is sufficient direction for an effective training program.

    The standard should be boiled down to the core training requirements (develop a program, deliver training [including and consistent with CEH], record and assess progress, adjust the program annually).

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Tim Hattaway	
Organization:	Alabama Electric Cooperative	
Telephone:	334-427-3282	
E-mail:	tim.hattaway@powersouth.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☒ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs, ISOs, Regional Reliability Councils
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☒	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

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Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: PER-002 already requires a coordinated training program to ensure reliable system operation.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: PER-002 already calls for a training program that addresses the initial and continuing training needs of personnel responsible for system operations.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: I agree that training programs should be categorized into initial and continuing training needs; however PER-002 already requires this.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments: The sub requirements of R4 are unecessary.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: Determining the compentency of a personnel delivering training appears to be very subjective.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The first six sub-requirements appear to be the items listed on a CEH learning activity application. R7.7, R7.8, R7.9, R7.10 are confusing and seem to be unmeasureable.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The financial burden could be too great for smaller entities by requiring company specific simulators.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☐ No

   Comments: CEH program requires all approved system operator training to be recorded.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: R1 should be Med or Low

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☐ No

    Comments:

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☐ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☐ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☐ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: These training requirments are reminecent of kudzu (a fast growing vine with deep roots planted years ago to help stop soil erosion). Just like the unstoppable vines that have taken over and smothered other plants, climbed trees and taken over crops, these proposed training requirements reflect kudzu in that they keep growing. Rules, regulations and documentation overkill are strangling the efforts to operate a reliable power system.

Comment Form — System Operator Training Standard — 1st Draft

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
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Group Comments (Complete this page if comments are from a group.)

Group Name: PJM

Lead Contact: **Tom Bowe**

Contact Organization: **PJM**

Contact Segment: **2**

Contact Telephone: **610-666-4776**

Contact E-mail: **tbowe@pjm.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Albert DiCaprio	PJM	RFC	2
Ray Gross	PJM	RFC	2
Mark Kuras	PJM	RFC	2
Gerald Mellinger	PJM	RFC	2
Robert Thomas	PJM	RFC	2
Joseph Willson	PJM	RFC	2

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments:
   In response to the specific question posed: The PJM agrees with the IRC that the information listed should be included in a Job Task Analysis. However, the format of the question focuses on the details of the requirement (i.e. what goes into a JTA) and presupposes the need for the requirement itself.

   In its present form, it appears that each subject entity would be free to select the JTA model of its choice. The standard needs to identify the criteria that would be used to assess the adequacy of the entity's JTA and other required elements in the Training Standard.

   PJM does NOT agree that a Job Task Analysis should be a NERC mandated requirement. The customized subjective nature of job tasks precludes a 'standardized' requirement. Any approach that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard.

   Requirement 1, states that the JTA must be updated whenever there is a new or revised task or tool. The measurement for R1 states that you need a current JTA. It is impossible to evaluate this requirement let alone have consistency across ALL system operators in North America.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments:
   The IRC agrees that Training programs must address the needs of the individuals, regardless of the experience level. Further, the IRC agrees that Training Programs must span the entire spectrum from new hires to experienced individuals.

   R2 and R3 however, would mandate individual person by person formal assessments. And R3 would impose unprecedented annual 'needs assessments' of each incumbent operators.

   R2 and R3 go well beyond requiring Corporate Operator Training programs, and go into mandating the practices and procedures for Personalized Training programs. The IRC does not agree that a one-size-fits-all Assessment requirement will meet the unique and varying needs of the responsible functional entities. As noted in the response to

Q1, the customized subjective nature of indiviual's needs precludes a 'standardized' requirement. Any approach that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard.

A training needs analysis should to be conducted for all new entry level operator candidates, and newly hired experienced operator to determine their present level of accomplishment. However, to mandate that there be an annual Training Needs Assessment of all incumbent system operators is without basis and "over-the-top". If there was an identified deviation in performance, then a determination by entity management would need to be conducted to determine whether or not the performance deviation is a training issue or something else. Not all problems can be resolved by training.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☒ No

   Comments:
   PJM supports a requirement that all responsible entities must have a System Operator Training Plan for maintaining current competencies, learning new competencies, and practicing needed competencies. The Plan should include training that covers all the experience levels for the specific respective entity (not for some undefined common need).

   All responsible entities must have the option of training entry level system operators either by internal training resources or by contracting with a training entity to provide same.

   All responsible entities must have a plan for entry-level system operator training, IF and ONLY IF entry-level training is required. However, there is no basis to fully-develop and have-ready-for-delivery an entry-level program if no such need exists.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:
   PJM supports ongoing Training Programs, but does not support a standard that requires a program "for each operator". Operator-specific programs may be an admirable objective, but they are not always practical.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☒ No

   Comments:
   A requirement that each entity verify trainer competency mandates each entity to assume an expertise that is outside the scope of those reliability entities. For this requirement to remain in this standard, the industry would need to define what competence is and what measures are used to assess competency before requiring it of anyone.

   Incompetent trainers will be identified by system operators failing the NERC certification tests. Since uncertified operators are prohibited from real-time operations the integrity of the system is not threatened - however, continuing such test failures would likely result in the trainers being replaced.

   As note in the responses to Q1 and Q2, any standard that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard. To meet the FERC directive the standard must include a definition of competence and the measures used to assess that competence.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments:
   If the question is "Do you agree that the list in R7 is useful in any Training Program?", then PJM agrees that the items in the list are useful.

   If the question is "Do you agree that NERC mandate each item in the R7 list in order to have a valid Training Program?", then PJM would does not agree that there is any basis for mandating those requirements. The proposed set may be a good set but it is not justified as the only set.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with “hands-on” experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:
   PJM does not support requirements that mandate "How to" carry out a given standard. Although PJM does support the use of near-real time Operating Training simulators, PJM also recognizes a simulator is not a necessary tool for conducting valid excercises.

   A veteran trainer can accomplish higher quality and more relevant training by way of a well designed and executed table top exercise rather than a "generic" simulator or even a system specific OTS which is not kept current with the real time system. An OTS/DTS simulator is a tool for training rather than the training itself.

8. Do you agree that there should be a record of each system operator’s training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☒ No

   Comments:
   PJM agrees that a training results tracking system is a valid Training task, but questions whether or not this task rises to the level of a NERC standard.

   Note:
   Question 8 refers to Requirement 8. However, Question 8 asks a question (relating to documenting operator needs) that is not part of Requirement 8 (relating to training only)

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☒ No

   Comments:
   An annual evaluation of training programs is a good practice, it is important but it is not required. As with other proposed requirements, this requirement does not provide a quantitative measure related to evaluation. There is no explicit template or document detailing how program evaluation is to be conducted. To qualify as a Standard, there need to be specific measures. This is an example where an accreditation process for real time operating personnel training programs would be a better fit than a Training Standard.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☒ No

    Comments:
    In response to the question, PJM agrees that training materials should be up-to-date.

    In response to the proposed R10, the associated measures have no relationship to evaluating whether or not the materials are up-to-date. The Drafting Team must more accurately define the term "accurately reflects" . Also, there is no specificity identifed as to what constitutes "current operating environment". What is required to determine if an entity is in compliance or out of compliance?

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: See response to question 19

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: See response to question 19

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: See response to question 19

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: See response to question 19

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

    ☐ No

    Comments: The proposed standard requires more public discussion before discussing field testing needs.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: The proposed standard requires more public discussion before discussing implementation plans.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:
    PJM recognizes and supports the need for and the value of developing system operator Training plans, and of maintaining and implementing those plans.

    PJM also recognizes that owing to the diverse system characteristics, varying operating systems and multitude of operating procedures used by the subject responsible entities, that the Training Programs used to effect those Training plans are not and cannot be standardized.

    Violations Risk Factors
    PJM does not agree that the SDT correctly interpreted the definitions of the Violation Risk Factors; and does not agree with the factors proposed.

    Training Program Accreditation
    Rather than attempting to proscribe what must be included in every program, PJM suggests that the SDT consider creating a System Operator Training Accreditation Program.

    PJM suggests the SDT consider revising the Standard to simplifiy the standard to mandate:
    - Responsible entities have a System Operator Training Plan
    - Responsible entities use accredited Training Programs to implement those plans

    PJM further suggests that the that the details proposed in the current standard be drafted into a Technical Reference Guide that could serve as the basis for the Accreditation program.

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Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Walter Cintron	
Organization:	Consolidated Edison of New York	
Telephone:	212 580-8684	
E-mail:	cintronw@coned.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
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Group Comments (Complete this page if comments are from a group.)

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments:

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Ideally simulators should be used by entities that have responsibility for the operation of the bulk power transmission system. They have been proven to be effective for operators learning how to respond to different contingencies on their systems. Restoration plans can also be simulated so that the operators are restore their systems following a blackout.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments:

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: R6.5.2 risk factor is medium whereas R6 is labeled high. SubRegional, regional exercises should be a high priority as maintaining reliability throughout the bulk transmission system is not limited to individual systems. The blackout of 2003 in the Northeast and the blackouts in the WSCC are perfect examples of why these exercises should be done.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: The Reguirement R3 and Measure R3 may not be realistic to maintain as "mismatch" between criteria and actual performance needs to be defined in the document.

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: No the starting dates are to stringent in order to have a job task analysis completed and in place by June 2007. December 2007 would be more realistic.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: See comment to #15.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: There are no questions regarding R3 which needs some interpretation of what a " mismatch" is. I cannot see how this item can be tracked unless there is a clear violation of a procedure.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Will Franklin	
Organization:	Entergy Services - System Planning & Operation	
Telephone:	281-297-3594	
E-mail:	wfrankl@entergy.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☒ **SERC**	☒	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

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Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

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Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: The R1 requirement specifies that the information that must be collected pertains to only reliability related tasks 'identified' by the JTA. Thus the methodology for the JTA should remain under the descretion of the entity. Regarding the list of information related to the reliability tasks identified by the JTA - different training philosophies may not need this much detail in order to adequately train operators to successfully perform the tasks. Employing differing JTA methods and 'required' information neither makes an operator and entity more or less competent and reliable.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: Many entities may employ a 'pipeline' training program for a new operator whereby the trainee receives training whether or not they have previous knowledge, then the knowledge and skill abilities are assessed through testing and a qualification card process.
   Additionally, to attempt to individually assess the training needs of each incumbent operator would be burdensome to employ and document. Again, some entities may operate under the philosphy that once an individual achieves qualification, and they periodically pass testing to maintain qualification then no additional plan is needed. If they fail, only then is an individual remediation plan is developed.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

Comments: An annual plan for training should be developed & implemented. However, it is not needed on an individual basis.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: Of course the training developers and presenters should be competent. However, how would one verify the competence? What qualifications would be acceptable (M5)? This is subjective. R5 - R5.2.1 adds ambiguities into the standard.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Again, the requirements for documentation are too are stringent. The way this is written, it appears that any reliability based training must essentially meet NERC CE requirements.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: This is idealistic. Of course the use of a simulator has benefits. The ability for entities to access a simulator may be cost prohibitive. Until the system operator training program matures, hands on simulation should be desired but table top exercises should be acceptable to meet simulation requirements. Some entities may have only a few specific reliability tasks, thus obtaining a simulator just for those few tasks may be impractical.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: Documentation should be required, but as long as the training program covers demonstrating the skill requirement and keeping records of who has completed the task, then maintaining a record of task completion for every individual is excessively burdensome.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments: However, R9 is redundant. Evaluating the training program is inherent in developing an annual plan as identified in R4.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

☐ No

Comments: Obviously the training material should be current. However a particular training module need not be updated until is being prepared for presentation. Additionally, corrections should be allowed to occur during training sessions since things can change quickly and not allow the training materials to be updated (e.g. setpoints, procedure steps, new equipment).

On a similar topic, the NERC Operator exam process should be held to maintaing tests current under this philosophy (or not including/grading questions on information that has changed during the testing cycle). We have had to train operators on old/outdated information just for testing purposes. This is not productive.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: This standard is administrative. Nothing in this standard affects reliability in the first degree. Thus, most if not all items should be rated as "lower".

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: Due to the redundancy in the Requirements, the Measures are equally redundant.
    Additionally, why are there no Measures for R6.5 - 6.5.2?

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: R6.5 on "EOPs" should be implemented immediately since the industry is currently held to this requirement under a memo issued after the 2003 blackout. PER-002 already requires this training. If PER-002 is eliminated by this standard then R6.5 should become effective immediately.

    Also, the implementation plan proposes to retire PER-004 and states that PER-004 R1 is duplicated in PER-003. This is not completely true. PER-004 R1 states that the RC will be staffed 24/7, but PER-003 just states that the operators will be NERC Certified. Later in the Measures it states it will be staffed "at all times". PER-003 should be modified if PER-004 is to be eliminated.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: see comment in question # 15

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: R6 seems to exist only to state that one must 'implement' the plan developed in R4. This unecessarily clutters the standard. It would be more concise to state in R4 that one must 'develop and implement' an annual training plan.

    Thanks for the opportunity to provide input on the development of the standard. In general, we support the principle of developing more structured guidelines for operator training.

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Please: Enter text only, with no formatting or styles added.
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Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: Further information is needed to offer an informed opinion on Requirement 1 and the required information specified in R1.1 through R1.7. The term reliability-related needs clarification and specific examples of what fits and does not fit the definition of reliability related. Clarification and or an example of an acceptable job task analysis is also required to properly comment on this standard.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: The training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator. Properly trained incumbent system operators should not require a training needs assessment on an annual basis. Particularly since other specific NERC standards identify required annual training and the new NERC Certification credential maintenance program requires continuing training hours in specific categories.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

☐ No

Comments: Certainly anyone who develops or delivers training to system operators must be competent to do so. However, the term operating knowledge needs to be further clarified. If a person lacks actual operating experience for a particular task, would they not be considered competent to develop or deliver training to system operators? In R5.1.2 and R5.2.1, what criteria will be used to establish competency? If an individual has actual operating experience of a particular task, but has not been formally trained in delivering training, will they be considered competent?

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: The requirement in R6.5.2 to involve all real-time operating positions involved in the actual event is a good goal, but may not be achievable due to personnel availability.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments: This should apply to entry-level or newly-hired experienced system operator only.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☒ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: Requirement R1 for a Job Task Analysis would certainly be very important in ensuring that a training program has addressed every required subject. However, to say that it is a HIGH risk factor implies that it is critical to system reliability. There are probably many company training programs preparing highly qualified operators that support system reliability that do not have a Job Task Analysis completed to the detail specified. Given this situation, a lower risk factor may be more appropriate.

12. Do you agree with the Measures in the proposed standard?

    ☒ Yes

    ☐ No

    Comments: We agree with the Measures to the extent that they agree with our comments to the Requirements.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: Too aggressive for the standard in it's present form. All phases of the Implementation Plan should be extended by 12 months.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

Comments: We agree that field testing is not necessary. However seminars and/or training material to throughly explain this standard and examples of a compliant training program are required before this standard can be implemented.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: See answer to question 15.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

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Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Alan Adamson	
Organization:	New York State Reliability Council (NYSRC)	
Telephone:	(518) 355-1937	
E-mail:	aadamson@nycap.rr.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: The tasks to be performed by a system operator should be defined by the standard drafting team (SDT). A training program should then be developed by the entity to assure that any and all operators are proficient in those tasks. The standard need not get into the specifics of the training program.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: Before taking an unsupervised shift a system operator needs to have demonstrated proficiency, regardless of past experience.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: Again, the SDT needs to identify the knowledge set for a system operator.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

   Comments: R4 should only be a restatement of this question (each entity should have a training program that assures the proficency of the system operators) and not include the details as presently stated in R4 of the draft standard.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: How the training is performed should be at the discretion of the entity. The purpose is to produce system operators that meet a defined level of proficency. If the operator can prove a level of proficiency the training was succesful.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☒ No

   Comments: The entity should have records showing the system operators have either mastered a proficency or have not.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☒ No

    Comments: While it is good practice it does not belong in the standard. See response to Q19

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

☒ Yes

☒ No

Comments: A violation risk factor of High means a violation has the potential to directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or did or could have placed the bulk power system at an unacceptable risk of instability, separation or cascading failure.

R1. No. A lack of a job task analysis is not a high risk factor to the BPS. It should be Medium
R2. Yes.
R3. Yes
R4. No. This should be low. This is purely administrative.
R5. Yes. Lack of competency in developing the trainig program could have unacceptable ramifications on the training.
R6. Yes
R7. Yes
R8. No. It is Lower since it is purely administrative.
R9. No. It is Lower and administrative.
R 10. Yes.

12. Do you agree with the Measures in the proposed standard?

☒ Yes

☒ No

Comments: Agree with 1, 2, 3, 5 and 11. Disagree with 4, 6-10 and 12
4-See comments on Q4
6-9-See comments on Q6
10-See comments on Q8
12-See comments on Q10 and Q19

13. Do you agree with Compliance Monitoring section of the standard?

☒ Yes

☐ No

Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

☒ No known Regional Differences

Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☒ Yes

☐ No

Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

☐ Yes

☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☐ No known conflicts

    Conflict: Conflicts with sections of PER-002.

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☒ Yes

    ☐ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: This Standard is overly broad and vague. This Standard is focused on the training program and not on the purpose of training. It is not important that an entity has a training program. Rather, it is vital that the entity has an effective training program, and one that is measurable by NERC.

    The Proposed Standard defines actions the entity must take, but it does not define a performance measure that is tied to improving System Operator competency. For instance, if a gap is identified and training is provided, then the entity has met the proposed Standard's requirements. But there is no assessment of successful training or poor training. Whether a gap is closed or remains after training does not matter to this Standard.

    This Standard should be limited to a requirement for the entity to identify and document required skills, a requirement to define an acceptable time period to acquire the skill, a method of documenting the Operator's skill, a method to reassess the Operator's skill if a gap was measured, and removal from Operation if a gap persists.

    The proposed NERC Standard is too keen on documentation of lesson plans, and not sharp enough on defining valuable objectives. Specific comments are:

    1. R1. What is a Job Task Analysis? Needs to be defined. There is a difference between a list of tasks the Operator performs and a step by step instruction of performing the tasks.

    2. R1.1 Needs to be more specific. What is meant by conditions?
    R1.2 This needs to be defined for the level of specificity required.
    R1.4. I think all real-time reliability related tasks are equally critical. The SDT should otherwise define levels of criticality criteria.
    R1.5 What is the SDT looking for in frequency definition? How is it defined?
    R1.6 Knowledge, skill and experience levels are not needed for JTA. All system operators, regardless of experience levels, should be able to perform reliability tasks.

    3. R4 This does not belong in a Standard. The details are the responsibility of the entity.

4. R 6.2 How many hours of continuing training is required.
R6.3 The word “Requirement” should not be spelled out.
R6.4 Is not needed. Seems a repeat of R6.3
R6.5.1 Is the PER-002 R4 requirement going to be deleted?

5. R7. Training, the hours of training, the method of delivery, and objectives do not need to be documented to have a successful training program. Suggest eliminating this requirement.
6. R8. Training should be performed until an Operator is competent in a task.
7. R10- Not needed in a Standard.

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E-mail:	marion.lucas@alcoa.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
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☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: Each company, not NERC, has the right to decide what, if any, job task analysis should be performed when training its employees. Categorizing specific tasks into a listing for job task analysis documentation should never be considered a HIGH risk factor. Only specific tasks that are considered critical to reliability should be considered in an analysis for compliance to a reliability standard.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: No. It is not NERC's responsibility to dictate the training needs of new hires, as OUR company determines what is necessary for training issues to prepare the new hire for performing OUR specific job reqirements. NERC should only be involved with the Certification and OUR company shall train the new hires to meet and/or exceed the certification requirements. The Certification test itself is the measure of competence to do the job and NERC need not set a requirement on new hire/entry level training needs for individual companies on which to be monitored.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: Continuing enducation, refresher courses on current and infrequently performed jobs is important. We all experience in any job that we perform or with any degree/certification that we hold the need to stay current on latest trend and refresh the lesser used functions. As determined in job reviews for salary administration, to assess competency and further training needs our company already performs these functions, NERC need not be involoved in employee development OR our company's administration functions.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

Comments: Yes, I agree that the training plans should be developed by each company to suit its needs but it may not be necessary to develop an individual plan for each operator as this determination would be a result of the employee review process.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: Again, this is an administrative function that each company should oversee, to assure it will be able to operate in a reliable manner, consistent with the NERC Standards that apply to RELIABILITY, and NOT what NERC decides is the criteria for measurement of a trainer's competency.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Each company's admisnistrative and training functions are NOT a NERC resposiblity to dictate.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Mandating that a training simulator drill is a REQUIREMENT would force small companies and/or those that have little or no impact on reliability of the Interconnection to incu un-warranted expense and could not pass a cost-benefit analysis by any reasonable person.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: This is truly a salary review/administration function and is NOT something NERC should be involved in.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☒ No

   Comments: I agree that training programs should be reviewed but not necessarily on an annual basis. Again this is part of the company's administration function not NERC's.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☒ No

    Comments: Unless major system changes or major NERC rules change, the company's training plans need not be changed or reviewed that often. Every 3 years would be more than adequate to review training plans.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: See comment 1. High and Medium risk factors assigned to listing of job tasks/documentation/ or review is extreme. High and medium risk factors should be equated with critical or significant impact on the Bulk Power System.
    As in above coments, the administrative functions that should NOT be included in the Standard (such as R1 - JTA) would not then be a violation consideration.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: This is all a duplication of the much simpler and less intrusive PER-002 and PER-003.

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: See comments in 12.

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: As above, the entire standard is duplicative, intrusive and overstepping in its bounds. It should be eliminated.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: Should not be implemented at all

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Allen Klassen	
Organization:	Westar Energy	
Telephone:	785 575 6073	
E-mail:	Allen.Klassen@westarenergy.com	
NERC Region		**Registered Ballot Body Segment**
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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments:

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: But not annually, suggest a 3 year cycle to fit with the overall training needs including Continuing Education for Operator Certification.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

   Comments: Annual plan is too frequent, not looking a the long term plan. Again, suggest a 3 year cycle to fit with the overall training needs including Continuing Education for Operator Certification.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This requires a huge amount of documentation (which doesn't make better training), Are you trying to sell software with this Standard?. To be specific, R7.6 requires indentifying task from R1, then R7.7, R7.9 and R7.10 all require documentation of information already documented in R1 in association with the task(s) listed for R7.6, one circular reference should be enough.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Although I fully support the use of GOOD simulators, requiring the use of a simulator would force many entities to use the generic simulators which are not necessarily a benefit over a well-designed exercise. Many of the generic simulators are not "realistic" and therefore do not reinforce the training and may actually detract from it.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: I agree with the items in R8 but not with what this question asks.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☒ No

   Comments: This is too frequent, need to evaluate a "program" by results and trends over time, suggest 3 year evaluation. This does not preclude evaluating and improving elements of the "program" more often.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☒ No

Comments: It is more important to get the training to the operators than to update materials. This can be covered by explaining any portion of the materials that may be outdated or incorrect, rather than not being able to provide prompt and timely training because of a requirement that all materials have been updated. This requirement might prohibit someone from using a training video that contains excellent information but also includes a reference to an outdated requirement or procedure (90% corect, 10% wrong).

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: Based on the NERC definitions of the Risk Factors, it is hard for me to agree that ANY of this Standard qualifies as HIGH (causing instability, cascading failures, etc) even giving them a risk factor of Medium may be a "stretch". I suggest R1, R3, R5, & R6 be changed from HIGH to MEDIUM, and R8 be changed to LOWER (as is record keeping and seem to match the definition of ".. administrative in nature ..")

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: Can't agree with all measures without agreeing to all requirements, however, they match the requirements well in general.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: Not giving enough time to meet the new requirements (lots of development and creating excessive documentation will have to be done) and should not make ANY requirement effective mid-year. Suggest effective dates of 1/1/2009 for R1 - R7 and 1/1/2010 for R8 - R10 at the earliest.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: Not giving enough time to meet the new requirements (lots of development and creating excessive documentation will have to be done) and should not make ANY requirement effective mid-year. Suggest effective dates of 1/1/2009 for R1 - R7 and 1/1/2010 for R8 - R10 at the earliest.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: R6.5 needs to be revised. Why maintain the 32 hour requirement which was arbitrarily "pulled from the air" as a reaction to the blackout, if the training program is developed and evaluated as required, arbitrary specified hours should not be required. R6.5.2 requires coordination and development of exercises that can not be completed by an individual entity (how can they be held to compliance if their neighbor fails to particpate, etc?). To complete this requirement annually for every operator at every entitity you better schedule an exercise every week, much too excessive, try every three years for each operator or maybe this is already covered by Continuing Education for Certification.

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Dan M. Kay	
Organization:	South Mississippi Electric Power Association	
Telephone:	601-261-2369	
E-mail:	dkay@smepa.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments: Generally agree with the information that should be collected but, should not be required by NERC in a standard. If & how a job task analysis is done should be left up to the employer not NERC.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: Generally agree that the needs of entry and experienced operators should be identified but, should not be required by NERC in a standard. Again, this should be the left to the employer, not required by NERC in a standard.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: This should be the left to the employer, not required by NERC in a standard.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments: This should be the left to the employer, not required by NERC in a standard.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

Comments: This should be the left to the employer, not required by NERC in a standard.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This should be the left to the employer, not required by NERC in a standard.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This should be the left to the employer, not required by NERC in a standard.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: This should be the left to the employer, not required by NERC in a standard.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☒ No

   Comments: This should be the left to the employer, not required by NERC in a standard.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☒ No

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11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: This should be the left to the employer, not required by NERC in a standard.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: There is no need for this standard. The NERC System Operator Certification Program with the required continiuing education for re-certification that is allready in place is more than sufficient to ensure an adequate level of training is accomplished at the NERC level. Each individual employer must decide the level of training it requires for operation of it's own system.

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☐ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

    ☒ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☐ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: There is no need for this standard. The NERC System Operator Certification Program with the required continiuing education for re-certification that is allready in place is more than sufficient to ensure an adequate level of training is accomplished for System Operators to know and to abide by NERC standards. The Employer of the System Operator is alleady held accountable via the 100 or so present standards, each with multiple requirments, should the System Opertator not be sufficintly trained and cause a violation of these standards.

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Name:	Brian Tuck	
Organization:	Bonneville Power Administration	
Telephone:	(360) 418-2283	
E-mail:	batuck@bpa.gov	
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   ☒ Yes

   ☐ No

   Comments:

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: BPA agrees with the basic requirement of performing a training needs analysis to determine training needs, as expressed in requirement R2 and R3. BPA disagrees with the annual requirement proposed in R3 for incumbent system operators. While BPA agrees that the training needs analysis should occur with some periodicity, evaluating every system operator against the entire task list "at least once every year" is excessive. A complete and thorough assessment should result in a foundation for more than one years worth of training. Prior to going through the complete reassessment again, sufficient time should be allowed for the system operator to complete training and develop skills and knowledge in the areas identified as lacking. BPA suggests a three year cycle rather than every year.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

☒ No

Comments: BPA agrees that personnel assigned to develop or deliver training should be competent to do so. However, BPA strongly disagrees that the verification of competency should be done by NERC, the RRO, or any other outside entity.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: R7 lists documentation requirements for each "learning activity" used to support reliability related training. BPA does not support the requirements listed. BPA suggests following the documentation principles described in the NERC Continuing Education Program. These items include:

   Learning Objectives
   Training Content and Materials
   Delivery Method and Qualifications of Instructors
   Learning Assessment to assure the learning objectives have been achieved
   Evaluation of the learning activity
   Review and update

   Requirements R7.6 - R7.9 are references to the tasks determined in the JTA that the learning activity is designed to cover. By complying with R7.6, the entity has made the link to the task analysis. The remaining items (R7.7-R7.9) are not beneficial to assuring quality learning activities. BPA recommends that items R7.7-R7.9 be removed.

   It is not clear whether requirement R7.10 is asking for special documentation of a component of a learning activity, or if it is listing additional requirements for learning activity content. This requirement is not beneficial to assuring quality learning activities, and should be removed.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with “hands-on” experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree that there should be a record of each system operator’s training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: BPA supports keeping a training record for each system operator, but finds the record-keeping requirements described in R8.1 and R8.2 to be unnecessarily detailed. The performance assessment criteria and duration of learning activity described in 8.1 and 8.2 are already captured in the learning activity documentation and assessment of meeting learning objectives. Separately identifying these items here is unnecessary. BPA suggests that a training record which consists of a historical

record of the annual training plan and the dates that training activities were successfully completed would be an adequate record for tracking progress toward meeting competency requirements of the assigned job.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

☐ Yes

☒ No

Comments: While training has been considered a contributing factor in many system disturbances, it does not follow that the essentially administrative tasks performed in the process of developing, implementing, and record-keeping of training activities should be assigned Violation Risk Factors of Medium or High.

Incomplete training documentation does not mean that training provided by an entity has been ineffective or non-existent. Poor documentation practices do not "directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures", stated in the NERC definition of High Risk.

BPA notes that a Violation Risk Factor of Lower does not imply that it is acceptable to ignore or poorly perform the requirement.

BPA suggests the following Violation Risk Factors for the requirements described in the proposed standard:
R1 - Prepare and update JTA for each position. LOWER
R2 - Perform training needs assessment for each new hire. MEDIUM
R3 - Perform annual training needs assessment for each incumbent. MEDIUM
R4 - Develop annual training plan for each system operator. LOWER
R5 - Training delivery by qualified instructors. MEDIUM
R6 - Training provided meets Knowledge and Skill requirements of position. MEDIUM
R7 - Documentation Guidelines for training materials. LOWER
R8 - Documentation Guidelines for personnel training records. LOWER
R9 - Annual program review to ensure effectiveness. LOWER
R10 - Use of updated instructional materials. LOWER

12. Do you agree with the Measures in the proposed standard?

☐ Yes

☒ No

Comments: BPA agrees the measures are worded appropriately for the Requirements as written. Howver, BPA and others are requesting changes to the Requirements which will require corresponding changes in many of the Measures.

13. Do you agree with Compliance Monitoring section of the standard?

☐ Yes

☒ No

Comments: The RRO is identified as the Compliance Monitor for the Standard. The Compliance Monitoring Period and Reset section lists all the potential methods the RRO may use to monitor compliance. BPA recommends Self-certification, Periodic Audit (required 3-year compliance audit, not the readiness audit), and Triggered Investigations. The Data Retention requirements are more detailed than necessary and

BPA recommends a simple requirement for all training documentation and records to be retained for three-years, similar to the requirement of the NERC CE Program.

14. Please identify any Regional Differences that you feel should be included in this standard.

☒ No known Regional Differences

Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☐ Yes

☒ No

Comments: BPA agrees with the concept of a phased implementation. The specific requirements included in each phase will need to reassessed once changes to the requirements requested by BPA and other commenters are included in the next revision of the standard.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☐ Yes

☒ No

Comments: BPA recommends field testing as a standard practice for all NERC Standards. Field testing reveals administrative concerns and sometimes substantive concerns that were not foreseen. All standards should be subject to at least a brief field testing period.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: The implementation plan will need to be assessed once changes to the requirements requested by BPA and other commenters are included in the next revision of the standard.

    BPA agrees with the concept of phased implementation. That said, to implement the training program described by this standard, in a manner that reflects the quality and effectiveness expected by industry participants, will require longer than two years.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: Requirements R4 and R6 address comparable training areas with the primary difference being that R4 is the "annual training plan" and R6 is the "implementation" of the annual training plan. BPA suggests the drafting team combine R4 and R6 into a single requirement addressing the separate issues of an annual training plan and its associated implementation. Separate Measures could be written to address these two areas even though they are contained within a single Requirement.

    BPA agrees with the requirement for annual refresher training on high reliability tasks (R6.5), and the inclusion of the 32 hour emergency operations requirement (R6.5.1) in this standard. While acknowledging the benefit of participation in regional exercises, BPA believes the requirement that all system operators participate in a regional exercise "involving all real-time operating positions likely to be involved in the actual event, with each person performing their assigned duties." (R6.5.2) is excessive and does not provide benefit commensurate with the development cost on an annual basis. BPA suggests removing requirement R6.5.2.

    BPA supports a Standard requiring development, delivery, and evaluation of system operator training using a "systematic approach". However, a mandatory reliability standard with economic sanctions should address the essental elements needed to comply with the Standard and not become too prescriptive in the implementation of the requirements. BPA applauds the restraint the drafting team has shown by making the effort to include only the essential elements of a systematic training program.

    Finally, BPA thanks the drafting team for your dedicated concern and efforts to improve our industry by helping entities develop valuable and effective training programs for system operators.

Comment Form — System Operator Training Standard — 1st Draft

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs, ISOs, Regional Reliability Councils
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: ISO/RTO Council

Lead Contact: **Charles Yeung**

Contact Organization: **SPP**

Contact Segment: **2**

Contact Telephone: **832-724-6142**

Contact E-mail: **cyeung@spp.org**

Additional Member Name	Additional Member Organization	Region*	Segment*
Tom Bowe	PJM	RFC	2
Peter Brandien	ISO-NE	NPCC	2
Mike Calimano	NYISO	NPCC	2
Ron Falsetti	IESO	NPCC	2
Brent Kingsford	CAISO	WECC	2
Anita Lee	Alberta	WECC	2
Steve Meyers	ERCOT	ERCOT	2
Bill Phillips	MISO	RFC	2

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments:
   In response to the specific question posed: The IRC agrees that the information listed should be included in a Job Task Analysis. However, the format of the question focuses on the details of the requirement (i.e. what goes into a JTA) and presupposes the need for the requirement itself.

   The IRC does NOT agree that a Job Task Analysis should be a NERC mandated requirement. The customized subjective nature of job tasks precludes a 'standardized' requirement. Any approach that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments:
   The IRC agrees that Training programs must address the needs of the individuals, regardless of the experience level. Further, the IRC agrees that Training Programs must span the entire spectrum from new hires to experienced individuals.

   R2 and R3 however, would mandate individual person by person formal assessments. And R3 would impose unprecedented annual 'needs assessments' of each incumbent operators.

   R2 and R3 go well beyond requiring Corporate Operator Training programs, and go into mandating the practices and procedures for Personalized Training programs. The IRC does not agree that a one-size-fits-all Assessment requirement will meet the unique and varying needs of the responsible functional entities. As noted in the response to Q1, the customized subjective nature of indiviual's needs precludes a 'standardized' requirement. Any approach that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☒ No

   Comments:
   The IRC supports a requirement that all responsible entities must have a System Operator Training Plan for maintaining current competencies, learning new competencies, and practicing needed competencies. The Plan should include training that covers all the experience levels for the specific respective entity (not for some undefined common need).

   All responsible entities must have a plan for entry-level system operator training, IF and ONLY IF entry-level training is required. However, there is no basis to fully-develop and have-ready-for-delivery an entry-level program if no such need exists.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:
   The IRC supports ongoing Training Programs, but does not support a standard that requires a program "for each operator". Operator-specific programs may be an admirable objective, but they are not always practical.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☒ No

   Comments:
   A requirement that each entity verify trainer competency mandates each entity to assume an expertise that is outside the scope of those reliability entities.

   The IRC supports ongoing Training Programs that employ systematic approaches to training. Such programs, including NERC's current Continuing Education program, include a feedback component from the participants in the areas of content and instructor competency. Although participant verification of the competency of the instructors is an inherent component of such systematic approaches, a standard on verification is unnecessary.

As note in the responses to Q1 and Q2, any standard that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard. To meet the FERC directive the standard must include a definition of competence and the measures used to assess that competence.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments:
   If the question is "Do you agree that the list in R7 is useful in any Training Program?", then the IRC agrees that the items in the list are useful.

   If the question is "Do you agree that NERC mandate each item in the R7 list in order to have a valid Training Program?", then the IRC would not agree that there is any basis for mandating those requirements. The proposed set may be a good set but it is not justified as the only set.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with “hands-on” experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:
   The IRC agrees that simulators can be valuable training tools

   The IRC does not support requirements that mandate "How to" carry out a given standard. Although the IRC supports the use of near-real time Operating Training simulators, the IRC recognizes a simulator is not a necessary tool for conducting valid exercises.

8. Do you agree that there should be a record of each system operator’s training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☒ No

   Comments:
   The IRC agrees that a training results tracking system is a valid Training task, but questions whether or not this task rises to the level of a NERC standard.

   Note:
   Question 8 refers to Requirement 8. However, Question 8 asks a question (relating to documenting operator needs) that is not part of Requirement 8 (relating to training only)

9. Do you agree that entities should evaluate their training programs every year? (R9.)

☐ Yes

☒ No

Comments:
An annual evaluation of training programs is a good practice, it is important but it is not required. As with other proposed requirements, this requirement does not provide a quantitative measure related to evaluation.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

☒ Yes

☒ No

Comments:
In response to the question, the IRC agrees that training materials should be up-to-date.

In response to the proposed R10, the associated measures have no relationship to evaluating whether or not the materials are up-to-date. The Drafting Team must more accurately define the term "accurately reflects" .

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: See response to question 19

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: See response to question 19

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: See response to question 19

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: See response to question 19

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

    ☐ No

    Comments: The proposed standard requires more public discussion before discussing field testing needs.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: The proposed standard requires more public discussion before discussing implementation plans.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:
    The IRC recognizes and supports the need for and the value of developing system operator Training plans, and of maintaining and implementing those plans.

    The IRC also recognizes that owing to the diverse system characteristics, varying operating systems and multitude of operating procedures used by the subject responsible entities, that the Training Programs used to effect those Training plans are not and cannot be standardized.

    Violations Risk Factors
    The IRC does not agree that the SDT correctly interpreted the definitions of the Violation Risk Factors; and does not agree with the factors proposed.

    Training Program Accreditation
    Rather than attempting to proscribe what must be included in every program, the IRC suggests that the SDT consider creating a System Operator Training Accreditation Program.

    The IRC suggests the SDT consider revising the Standard to simplifiy the standard to mandate:
    - Responsible entities have a System Operator Training Plan
    - Responsible entities use accredited Training Programs to implement those plans

    The IRC further suggests that the details proposed in the current standard be drafted into a Technical Reference Guide that could serve as the basis for the Accreditation program.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	CJ Ingersoll	
Organization:	CECD	
Telephone:	713-332-2906	
E-mail:	c.j.ingersoll@constellation.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☒ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: The phrase "company-specific reliability-related tasks" is too vague and subjective, which impacts the effect of R.1.1-R1.7 negatively. In addition, R1.1 task information realted to "the conditions under which the task is performed" should reference some reasonable aggregation of conditions, such as normal operating conditions, etc.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: CECD provided a negative response because CECD does not feel that, unless applicable, resources should be dedicated to developing new-hire training programs. CECD does feel it is appropriate to assess the training needs of operators in general, however it is unclear what evidence an entity must produce to show an assessment was performed. Is the annual training plan evidence that an assessment was performed? As written currently, are entities to assume that entry-level assessments are to be revised as tasks are added versus the annual gap assessments for incumbents?

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☐ Yes

   ☒ No

   Comments: CECD provides a negative response because CECD does not feel that, unless applicable, resources should be dedicated to developing new-hire training programs. CECD does feel training programs should include continuing training on new tasks or tools and refresher training as described above.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

Comments: However, there must be flexibility for variations from the plan, because of the nature of real time operating environements.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☒ No

   Comments: CECD does not think this should be included in this standard. CECD does not think a company is not going to waste limited time and resources on training provided by unqualified individuals. This may be appropriate for CEU type training where credit is provided but it is not a requirement that should be applied here.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The training documentation does not need to be this extensive. As stated above, this type of documentation might be appropriate for a CEU program but should not be a requirement in this standard. Training records should be adequate to show the Type of Training, the Trainer, Date, and the Length of Time of the activitiy.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Individual trainings programs should be able to allocate resources as they deem necessary and beneficial to their specific organization.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: Documentation should be by exception, reflecting only performance improvement needs, considering that there are already going to be records in place indicating the training that has been completed per R.7.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☒ No

   Comments: CECD does feel it is appropriate to evaluate the program but disagrees with the information sources reflected in the current draft.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments: This answer is applicable to a general operator training program, not necessarily any potential training matierial such as for new-hires.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: The Risk Factors associated with documentation, i.e. JTA, Annual Training Plan, Qualification Verification, should be assigned a Low state. The Risk Factor associated with actual training activity should be assigned a Medium Risk Factor. The items CECD suggests are Low Risk Factors should be assigned that specific priority due to the fact that the items described above, are administrative, and do not directly cause or contribute to instability, separation or cascading events (emphasis on "directly").

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: The Annual Training plan and training records should be the only items required for inspection based on the answers provided on this comment form.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: The current draft should be revised and a new implementation plan drafted to fit the amended draft.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Dale Wadding	
Organization:	Dairyland Power Cooperative	
Telephone:	608-787-1239	
E-mail:	ddw@dairynet.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☒ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: The requirements in R1.1 through R1.7 are good guidelines but are too complicated for some relatively simple tasks. R1. should stand alone with the detailed guidance on how to structure a JTA left to the reference documents which are being prepared by the drafting team.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: A requirement to perform an annual training needs analysis for every incumbent system operator is an unnecessary administrative burden. Proposed language would mandate such an analysis whenever there was a substantive change in the system operators JTA.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☐ Yes

   ☒ No

   Comments: Propose changing the word annual to continuing to allow some flexibility in when refresher training is provided.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments: R4.1 through R4.4 are unnecessary repitition and should be deleted.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: R7.9 and R7.10 are difficult to understand. Propose deleting both of these sub-requirements.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Although we use a simulator and feel that it is a useful tool, use of a simulator would be an unnecessary and/or unreasonable requirement for some entities. If the generic EPRI OTS or similar simulator was less problematic to install and use, it would be easier to agree with such a requirement.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments:

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☒ No

   Comments: Annual evaluation would be an unnecessary administrative burden. Propose requring this every three years or whenever there is a substantive change in the system operator JTA, whichever occurs first.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☐ No

    Comments:

12. Do you agree with the Measures in the proposed standard?

    ☒ Yes

    ☐ No

    Comments:

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: The Implementation Plan states that several reference documents will be issued to assist in compliance with the Standard but fails to establish a timeline for their release. These documents should be available as soon as possible and workshops should be scheduled to assist entities with compliance.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: Depending upon the level of detailed requirements in the final Standard, more than 24 months may be required to implement all components.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Dan M. Kay	
Organization:	South Mississippi Electric Power Association	
Telephone:	601-261-2369	
E-mail:	dkay@smepa.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☒	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
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☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

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Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments: Generally agree with the information that should be collected but, should not be required by NERC in a standard. If & how a job task analysis is done should be left up to the employer not NERC.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: Generally agree that the needs of entry and experienced operators should be identified but, should not be required by NERC in a standard. Again, this should be the left to the employer, not required by NERC in a standard.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: This should be the left to the employer, not required by NERC in a standard.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments: This should be the left to the employer, not required by NERC in a standard.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

Comments: This should be the left to the employer, not required by NERC in a standard.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This should be the left to the employer, not required by NERC in a standard.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This should be the left to the employer, not required by NERC in a standard.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: This should be the left to the employer, not required by NERC in a standard.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☒ No

   Comments: This should be the left to the employer, not required by NERC in a standard.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☒ No

    Comments: This should be the left to the employer, not required by NERC in a standard.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: This should be the left to the employer, not required by NERC in a standard.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: There is no need for this standard. The NERC System Operator Certification Program with the required continiuing education for re-certification that is allready in place is more than sufficient to ensure an adequate level of training is accomplished at the NERC level. Each individual employer must decide the level of training it requires for operation of it's own system.

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☐ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

    ☒ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☐ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: There is no need for this standard. The NERC System Operator Certification Program with the required continiuing education for re-certification that is allready in place is more than sufficient to ensure an adequate level of training is accomplished for System Operators to know and to abide by NERC standards. The Employer of the System Operator is alleady held accountable via the 100 or so present standards, each with multiple requirments, should the System Opertator not be sufficintly trained and cause a violation of these standards.

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Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Dave Folk	
Organization:	FirstEnergy	
Telephone:	330-336-9063	
E-mail:	folkd@firstenergycorp.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☒ **RFC**	☒	5 — Electric Generators
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☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*
Jeff Boltz	ED Transmission Operations		
Jim Eckels	ED Transmission Operations		

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

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Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments:

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments:

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☒ Yes

    ☐ No

    Comments:

12. Do you agree with the Measures in the proposed standard?

    ☒ Yes

    ☐ No

    Comments:

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☒ Yes

    ☐ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☒ Yes

    ☐ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: FE would like to request NERC consider providing industry wide web based software support for the the job task analysis requirement. Software is available and used by the nuclear industry that would be useful and benefical to completing the job task analysis requirement of this standard.

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Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
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☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Hydro One Networks Inc.

Lead Contact: **David Kiguel**

Contact Organization: **Hydro One Networks Inc.**

Contact Segment: **1**

Contact Telephone: **416-345-5313**

Contact E-mail: **David Kiguel@Hydro One.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Rob MacDonald	Hydro One Networks	NPCC	1

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: As posted, creating a JTA for operating positions can be an onerous undertaking as the list could be quite extensive. From the compliance viewpoint, the task may become onerous, depending on the level of detail and documentation that will be required. For example, switching operations could be broken down into many sub-tasks such as, routine, planned, contingency, restoration, emergency, low voltage, high voltage, system, auxiliary, SPS, manual, directed, independent etc. To facilite the requirement, NERC could provide a list of tasks for System Operators that entities can use and modify as required to represent their own uniqueness.
   In addition, there are other ways to determine training needs besides the use of a JTA. For example,
   - Lessons learned from Operating Experience
   - Corporate/Divisional Mandated Training
   - Remedial Training requirements
   - Government Legislated
   - Safety Training
   - New or changed tools, processes, procedures, instructions
   - New or modified equipment
   - AdHoc training requirements
   - Response to feedback or requests for training

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: Yes, the analysis should allow to compare a new worker's experience and knowledge (or lack of) versus that of an experienced system operator to facilitate identification of what they need to know and train accordingly.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: A training program must adapt to the level of experience and knowledge of staff. The training curricula should be tailored to include new operators and experienced ones with refreshers and more advanced levels for the latter.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments: A plan and schedule should be developed and implemented. However, some flexibility should exist in the plan to allow for Ad-hoc or unplanned/unforseen training requirements.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: Clarification must be provided on what is meant by “verification.” Attendance to a course on training facilitation doesn't guarantee competency in delivery. Sometimes it is difficult to expect a subject matter expert (SME) to be also a good instructor. In these cases, assistance in facilitation may be required. As for "competency in development using a systematic approach"...some SMEs may not be competent in this development. Therefore, assistance and staging the development may be required to ensure an adaquate end product.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: In general, these should be documented but there may be some training activities where not all of the items in R7.1 through R7.10 are applicable. Also, the associated training should include "Learning Objectives."

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with “hands-on” experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The use of a company-specific simulator for training is an asset. However, time spent using "generic" simulators may be better spent specifically reviewing one's own system restoration requirements via table top exercises, group activities, drills, discussion, facilitated restoration plan sessions, etc.

8. Do you agree that there should be a record of each system operator’s training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments: Training records for each individual operator should be kept. Measures of competency utilized should include simulations, testing, completed checklists, and job performance appraisals.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☒ No

   Comments: Training program evaluation and improvement should be an ongoing process. If the standard specifies a time period, a one-year cycle may be too long. Any specified time should add the words “as a minimum.” The response to feedback and lessons learned should be used to improve training on a continuous basis. Adjustments should be made to the curricula, design, development, and implementation of training as required and practical.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

☒ No

Comments: Although desirable, using updated materials may not always be required. In some cases it is a necessity while in others it is not. Entities should make an evaluation as to the suitability of their materials, facilitator, etc. before using it.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: The Requirements assigned High Risk Factor should be Medium. According to the definitions of Risk Factors, Training itself (or lack of it) will not directly contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures. The high fisk factor is in the requirements on credentials of operators which is dealt with in another standard.

12. Do you agree with the Measures in the proposed standard?

    ☒ Yes

    ☒ No

    Comments: Although agreeing with the need of Measures in general, there are some that may pose unnecessary documentation burden to entities.

    For example, M3 can be satisfied by use of an annual employee performance review without the need of creating an additional document to demonstrate compliance.

    Also, in M11, providing results of the annual review does not prove that an entity is modifying training as per their findings.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: Preparation for compliance with this Standard represents considerable work. The Implementation Plan should give more time to become auditable compliant.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☐ Yes

☒ No

Comments: There must be a field test to assess any impacts and adjust the standard accordingly.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: The phase in period should be conmensurate with the entity size. Larger entities may take longer to comply with this standard. Please see our response to question 15.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: In general, it is a good idea to be more prescriptive in training requirements but this standard is too prescriptive.
    -Greater understanding of the required detail pertaining to the JTA requirement in R1 is needed. Normally there are 3 requirement associated with learning objectives; action, conditions, and standard… not the 7 items listed R1.1 through R1.7.
    -R6.5.2 may be impossible to implement for every operator annually.
    -A clearer understanding of "reliability-related" and R1.4 "Criticality of the task with respect to reliability" is needed as this is open to subjective interpretation.
    -The activities listed in R7 may not all be applicable for each activity used to support reliability-related training.

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	James Hinson	
Organization:	ERCOT	
Telephone:	512.248.3997	
E-mail:	jhinson@ercot.com	
NERC Region		**Registered Ballot Body Segment**
☒ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☒	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
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Group Comments (Complete this page if comments are from a group.)

Group Name:

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Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments:

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: What deems high criticality and how will a designation be made?

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☐ No

   Comments: Not sure

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments: How would we designate mastering a skill versus just attending a class and getting a 70%

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☒ Yes

    ☐ No

    Comments:

12. Do you agree with the Measures in the proposed standard?

    ☒ Yes

    ☐ No

    Comments:

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☒ Yes

    ☐ No

    Comments: How do they confirm that any implementation has taken place

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☒ Yes

    ☐ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name: Roger A. McBeth		
Organization: Northeast Utilities - Connecticut Valley Electric Exchange		
Telephone: (860) 665-4986		
E-mail: mcbetra@nu.com		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: This requirement is overly prescriptive as to the development, content, and maintenance of a Job Task Analysis. This requirement will force every organization to out source, at a significant expense, the initial development of an overly prescriptive complex Job Task Analysis Database and to purchase a complex Learning Management System to manage the JTA data to support this requirement. Given the small training staffs of most training organizations, their time and energy would be better spent performing a less prescriptive informal job task analysis. When the Institute of Nuclear Power Operations (INPO) required commercial nuclear power plants to develop training programs using a Systematic Approach to Training, they not only provided a generic Job Analysis/Task List, they also provided a generic Job Task Analysis for all of the generic tasks that could be used by each of the training organizations. It appears that NERC will only provide a generic task list. A Job Task Analysis (JTA) is much more manpower intensive than a Job Analysis. If NERC will require a company specific task list with all of the requirements specified in requirements 1.1 through 1.7, then they should provide a generic task list and a generic JTA that satisfies requirement 1.1 thru 1.7.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: This requirement would place a significant administrative burden on a very small training staff to perform a training needs analysis for each operator on over 300 tasks. For small training organizations, it should be sufficient to have hiring practices that require minimum entry level education and experience and provide a training program based on the entry level requirements of the position description that addresses all of the tasks for the position. For incumbent operators, it should be sufficient to provide an operator training program that provides continuing training that covers infrequently performed complex tasks that are important to system reliability. The continuing training program should also address training weaknesses/deficiencies that have been identified through management observations of operator performance. It would be an overwhelming task for a small training organization to perform individual training needs analysis for each incumbent operator on over 300 tasks. While we understand the benefit of performing an individual training needs analysis for each newly hired system operator and for the incumbent system operators, we do not feel that the value added by this activity would justify the additional administrative burden. We would be better served by concentrating on the following:
   - Develop well defined entry level requirements

- Develop and maintain an Initial Training Program which provides training on all tasks selected for training.
- Develop and maintain a continuing training program that addresses 1) generic deficiencies for all operators, 2) training on core critical tasks

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This requirement is overly prescriptive for the documentation of each training activity. While most of these requirements should be covered, they may not necessarily be covered in the same document/location.
   R.7.1 - Title of the activity (Yes) Lesson Plan Cover Page/Attendance Form
   R.7.2 - Training Provider (Yes) CONVEX on Cover Page/Attendance Form
   R.7.3 - Description of the Content Covered by Activity - (Yes) Lesson Plan Outline
   R.7.4 - Classroom Lesson Plan, DTS Exercise (Yes)
   R.7.5 - Tool or References (Yes) References listed in Lesson Plan
   R.7.6 - Identification of Task or tasks covered (Yes) Task to Training Matrix not in Lesson Plan
   R.7.7 - Conditions under which tasks are performed are typically implied or part of the terminal objective. (Yes)
   R.7.8 - Identification of Prerequisite training; typically Not Applicable or defined as part of the training sequence for the Initial Training Program but not formally listed in any document except the Initial Training Qualification Guide. (Yes)
   R.7.9. - Objectives and assessments Objectives are part of every lesson plan (Yes)
   R.7.10 - Practice in following the steps and using the tools. (No) May be applicable for skill training during OJT or DTS but not for knowledge requirements covered in a classroom training activity. Overly prescriptive to specify practice in following steps and using the tools and references.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with “hands-on” experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Since the skills and knowledge of several of the operator's critical tasks can not be adequately covered in a table top exercise, classroom discussion, or OJT, a company specific-simulator should be used for operator training. Unfortunately the vendors that provide system operator simulators are not well designed and require excessive support for scenario development and maintenance. The EPRI OTS Simulator may be the most cost efficient option for small training organizations. It can be made company specific to meet an organization's needs but will not provide the same user interface as a site specific training simulator.

8. Do you agree that there should be a record of each system operator’s training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

Comments: With a typical task list of over 300 tasks this would be an administrative burden that will require organizations to purchase a complex Learning Management System. Typically Learning Management System reporting will provide reports for completion of Training Activities not tasks. A Learning Management Systems will track Training Activities (Classroom Lesson Plans, OJT Guides, Table Top Exercises, Simulator Scenarios, etc) and those training activities should be tied to the tasks covered by the learning activity.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☒ Yes

    ☐ No

    Comments: I agree with the High Risk Factor for Requirement 1 but not the level of detail specified for the JTA. It is important to have a company specific task list and a task to training matrix that identifies the following:
    Training Frequency = Initial Training, Continuing Training or Both
    Training Environment = Classroom, Simulator, OJT, etc.
    Training Activity Id which identifies the training activity with the objectives/content that addresses the knowledge/skills associated with the task.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: Measurement M1 is focusing on the content of a JTA not the training material and program that addresses the company specific task list. Emphasis should be placed on the following not the overly prescriptive items of 1.1 thru 1.7
    It is important to have a company specific task list and a task to training matrix that identifies the following:
    Training Frequency = Initial Training, Continuing Training or Both
    Training Environment = Classroom, Simulator, OJT, etc.
    Training Activity Id which identifies the training activity with the objectives/content that addresses the knowledge/skills associated with the task.

    Measurement M2 if a position description with well defined hiring requirements for new operators and for M3/M7/M8 a generic incumbent system operator assessment of training needs is not adequate to meet these requirements then these requirements would be an overly burdensome administrative requirement on organizations training staffs.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☐ Yes

☒ No

Comments: If NERC only provides a generic task list, organizations will not be able to complete a company specific task list and support a company specific job task analysis that meets the requirements of R.1.1 thru R.1.7 in one year with available resources. Organizations can not support the requirements of their existing Initial and Continuing Training Programs and complete a manpower intensive Job Analysis/Task Analysis at the same time. Most organizations do not have a training staff with the experience necessary to perform a Job Task Analysis. This will require organizations to seek contractor support to complete the requirement in that amount of time. If all utilities seek contractor support to complete their JTAs within the one year there will be a huge vacuum created by the lack of contractors to support this effort. A company specific job task analysis will also require the involvement of subject matter experts which means additional demands on your system operator's time. Organizations will be challenged to free up operators to serve as subject matter experts (SME) in support of a company specific JTA.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☐ Yes

☒ No

Comments: The drafting team should commit to not only provide a generic task list but also a generic JTA for the generic task list. A field test may help them recognize the unreasonable demand that this standard will place on the organziations.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: Organizations will not have the inhouse resources to comply with this standard and will result in a considerable expense to complete a company specific JTA using a vendor.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: This standard will require a huge investment for creating a formal Job Task Analysis Database/Document to meet requirement R1.1 - R1.7 and there will still be the cost of developing the training materials. To manage such a JTA Database will require purchasing a costly Learning Management System. Most organizations are not currently staffed to manage such an undertaking and there is not a large source of system operators with the training experience to complete all aspects of this standard. From my own personal experience in the nuclear industry, I was part of a 3 person training staff prior to implementing the Systematic Approach to Training at a commercial nuclear power plant in 1984. There was a steep learning curve and a significant increase in staffing to support the administrative requirements. INPO provided a generic task list and job task analysis. We were required to perform a company specific Job Analysis/Job Task Analysis and develop training material using the results of the Job Task Analysis. This effort took close to a year using a 20 person contractor staff and we ultimately hired an additional 11 full time instructors to support the operator training program. We stopped all formal training programs during the performance of the JA/JTA and placed a significant demand on operator's time to serve as subject matter experts to support the JA/JTA and provide technical reviews for training material.

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Ed Davis	
Organization:	Entergy Services	
Telephone:	504-576-3029	
E-mail:	edavis@entergy.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments:

   We believe R1 should consist of requiring the responsible entity to conduct a System Operator job task analysis, update that JTA when there is a new or revised task or tool, and specify the criteria for being QUALIFIED TO PERFORM each task. We agree that the responsible entity should keep a list of company-specific reliability-related tasks assigned to each System Operator position.

   We believe the draft R1 is overly prescriptive and suggest the last phrase of R1 - and the following information for each of those tasks: - be deleted. We also suggest R1.1 through R1.6 be deleted.

   If R1.3 is not deleted as part of the above suggestion, then R1.3 should be deleted because it is not significant if a task is performed alone or as part of a team.

   If R1.6 is not deleted as part of the above suggestion, then R1.6 should be modified to delete the term - experience - from the requirement. JTAs are performed to determine the skills and knowledge needed, not the experience needed, to perform a task.

   We also believe that R1.7 of the draft standard should require the specification of the - criteria for being QUALIFIED to perform each task. The requirement should not be to specify the criteria for - successful PERFORMANCE of the task.

   This draft standard should address the criteria for individuals to be QUALIFIED to perform a task, and should address the continuing training for personnel that are QUALIFIED. The standard should not require the employers to specify the CRITERIA for SUCCESSFUL PERFORMANCE.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments:

   Overall we agree with R2 with the exception that the training needs should be to meet the - criteria for being QUALIFIED to perform each task - and not - the criteria for successful PERFORMANCE of the task.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☐ Yes

   ☒ No

   Comments:

   We agree with the question as presented here but we do not agree with the way the subject is being implemented in the draft standard.

   Please see our suggested changes contained our response to Question 19 in this document, including our concerns regarding Sytsem Operators under contract or System Operators performing tasks identified in R1 under delegation agreement.

   Please also see our suggested changes to R6 contained in our response to Question 19 concerning the annual refresher training, practice of tasks that have high criticality and are infrequently performed.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

   Comments:

   We believe responsible entities should have annual plans that identifies the training planned for each system operator. However, we think that it is not necessary to specify that in a reliability standard for the BES and should be deleted from this standard.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☒ No

   Comments:

   Again, we agree with the question as presented here but we do not agree with the way the implied subject is being implemented in the draft standard.

Our concern here may be expectations, or terminology or semantics. The draft standard states the responsible entities shall VERIFY that persons developing or delivering training have the following qualifications:. VERIFY is a very nebulous term. Are audit teams going to accept a responsible entity's verification procedure and results? Are there industry-wide certification organizations that might be included in this standard whose stamp of approval would be acceptable to auditors so that responsible entities will only have to see that stamp of approval to know they are meeting this requirement? Is the responsible entity expected to give a test to the employees of a potential vendor to - verify - the employee of the potential vendor is qualified?

Entergy employees who are subject matter experts in developing training programs using the systematic approach provide training to other Entergy employees. Is Entergy (or other reponsible entities) expected to have their subject matter experts certified to satisfy the "competency" requirement R5.1.2? CERTIFIED by whom? Who establishes the VERIFICATION criteria - the responsible entities or the NERC auditors?

Entergy employees who are subject matter experts also provide training for other Entergy employees. Is Entergy (or other reponsible entities) expected to have their subject matter experts certified to satisfy the "competency" requirement in R5.2.1? CERTIFIED by whom? Who establishes the VERIFICATION criteria - the responsible entities or the NERC auditors?

We suggest this requirement be changed to specify that the responsible entities establish the verification criteria, as follows -

Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify - to the satisfaction of that Reliability Coordinator, Balancing Authority or Transmission Provider - that persons developing or delivering training have the following qualifications:.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:

   We suggest R7 be deleted since it is overly prescriptive and should apply to the entity giving the training course, not the Responsible Entity of this standard. Responsible entities should keep records of the training of System Operators but should not be required to document the details of every course, especially if that course is developed by another entity and certified by some certification organization.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:

   The use of a simulator is helpful and a great tool for training but not necessary, especially for small responsible entities, and should be deleted.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments:

   We believe responsible entities should keep records concerning the development of each system operator. However, we think that it is not necessary to specify that in a reliability standard for the BES.

   Please see our suggested changes contained our response to Question 19 in this document, including our conerns regarding Sytsem Operators under contract or System Operators performing tasks identified in R1 under delegation agreement.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☒ No

   Comments:

   We believe responsible entities should continually evaluate their training programs. However, we think that it is not necessary to specify that in a reliability standard for the BES and R9 should be deleted from this standard.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☒ No

    Comments:

    We believe responsible entities should update their training materials. However, we think that it is not necessary to specify that in a reliability standard for the BES and R10 should be deleted from this standard.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments:

    All of the Requirements in this draft standard should have a Violation Risk Factor of LOW. No Requirement in any training standard should have a Violation Risk Factor above LOW.

    A VRF of HIGH applies to requirements that - could directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures. Violation of a training requirement does not meet this criteria for HIGH.

    A VRF of MEDIUM applies to requirements that - could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures. Violation of a training requirement does not meet this criteria for MEDUIM.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments:

    Please revise the Measures to make them compatible with the revised requirements.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☐ Yes

☒ No

Comments:

The Implementation Plan references standard PER-004-1. If there is an approved PER-004-1 it is not on the NERC standards website. There is an approved standard PER-004-0.

We suggest the Phased Implementation Period be over 3 years rather than the 2 years indicated.

The following statement is contained in the discussion of PER-004-1 R3 and R4 - In addition, one of the purposes of requirement R6.4.2. in this standard is to develop a Reliability Coordinator's knowledge of other entities in the Reliability Coordinator's area. Should the reference to R6.4.2 actually be R6.5.2?

The Applicability section contains a statement about System Operators under contract or delegation agreement. Please see our suggested changes contained our response to Question 19 in this document, including our concerns regarding Sytsem Operators under contract or System Operators performing tasks identified in R1 under delegation agreement.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments:

    We suggest the Phased Implementation Period be over 3 years rather than the 2 years indicated.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

    Entergy Transmission agrees with the SAR requirements for developing this standard. The SAR requires a systematic approach be used to identify training needs and to conduct the training. The SAR also requires responsible entities have evidence that each of its real-time system operators is competent to perform each assigned task.

    Entergy's suggested changes contained herein are intended to make this draft standard better conform to the SAR requirements.

    We believe this draft standard is overly prescriptive in its detailed requirements for how the responsible entities implement a systematic approach to training. We also believe this draft standard is overly prescriptive in the detailed process, information and documentation entities must follow to meet the requriements of this draft standard.

    We also request that, in all locations in the standard, the criteria for being QUALIFIED TO PERFORM A TASK should be specified in the draft standard, replacing - criteria for SUCCESSFUL PERFORMANCE.

    The authors of this questionairre did not ask any questions, nor did they provide a place to comment on R6 which requires the implementation of the training program. We suggest R6.1 though R6.4 are overly proscriptive and should be deleted. Also, R6.5.2 requiring at least one exercise each year involving all real-time operating positions should be deleted as being too high a risk factor for the continued real-time reliability of the BES and would involve significant time and effort for the expected gain in operational experience.

We are concerned about the broadbrush requirements placed on the responsible entities concerning the training of System Operators under contract or under delegation agreement. This draft standard implies that the responsible entities are responsible for conducting a training needs assessment (R3), implementing its training program (R6), and tracking the progress of each of the operators (R8) for each of the operators under contract or under delegation agreement. We suggest the responsibility for training be assigned to either the contractor or the responsible entity, depending on the content of the training required (training about general power systems, or training concerning the responsible entity's specific system) and which entity is performing a specific task. First, the contractor under delegation agreement (not the responsible entity) should be responsible for training its employees about general power systems and tasks associated with the the specific system knowledge for the responsible entity; the responsible entity should not be measured nor held in compliance for delegated tasks. Second, the contractor employing system operators (not the responsible entity) should be responsible for training the contractor employees about general power systems, while the responsible entity should be responsible for training the contract system operator about the specific system knowledge for the responsible entity. We suggest the draft standard be revised to reflect these training responsibility concepts. We will agree with the Applicability statement in the Implementation Plan concerning contract employees and delegation agreement employees given the changes are satisfactorily made in the standard.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization: Florida Power & Light Co.		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☒ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Florida Power & Light

Lead Contact: **Eduardo DeVarona**

Contact Organization: **Florida Power & Light**

Contact Segment: **Transmission Owner**

Contact Telephone: **(305) 442-5674**

Contact E-mail: **edevarona@fpl.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Jeff Gooding	Florida Power & Light	FRCC	0

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☒ No

   Comments: Operating tasks that do not affect the reliability of the BES should not be subject to the same auditability as those that do. The language as written does not indicate that reliability-related tasks should be associated with the reliability of the Bulk Electric System. We feel it is important for these training standards to have appropriate flexibility to accommodate training requirements on an entity basis.

   Recommendation: Change the language to reflect Bulk Electric System reliability-related tasks.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: The proposed standard requires the development of individual training plans for each system operator within a company's training program. For many entities that do not have extensive training programs and resources, this is particularly burdensome and unnecessary from a practical standpoint. From a reliability perspective, the "training needs analysis" should focus on the training needs of a company, to achieve reliable operation of its facilities. The program should then make sure that all relevant personnel are adequately "trained" within the bounds of the defined program (as defined within the JTA) which will ensure the most reliable operation of that entity's facilities and subsequently ensure the overall reliable operation of the Bulk System.

   We feel that any "training needs analysis" must be based on the needs of the entity as a whole (as defined within the JTA) and not the individual operators. Further, this approach will ensure that all operators within a particular operating company receive equal training to maintain and develop operating skills and knowledge.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☒ No

   Comments: We agree but would prefer to have defined terms and intervals if necessary. We are uncomfortable with the term "incumbent" and "refresher". Right

now, these terms are unbounded (without definitions) and could be subject to various interpretations and misrepresentations.

Entry-level could be defined as the interval necessary or training components required for a NERC "certified" individual to become knowledgeable or functional at relevant tasks of the JTA for a particular entitiy's facility and operations (could be referred to as a qualification process). Once an operator becomes "qualified" then he/she enters the training program as a System Operator subject to a company's continuing training requirements.

The term refresher training is also too vague and should either be bounded by EOPS requirements (as already exists), or referred to as continuing training or defined in the standards glossary.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

☐ Yes

☒ No

Comments: The plan should address the training needs of the organization and how those needs will be met by providing the appropriate training to the required personnel (see answer to #2).

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

☒ Yes

☐ No

Comments: Not a "High" risk factor .

Language should provide for the use of subject matter experts (SMEs) in the development and delivery of training with the direction and assistance from an individual that has competency using a systematic approach to training.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This requirement is overly prescriptive and is inappropriate for this Reliability standard. The format is a good tool for development. We support its use as it also provides consistency with the NERC CE process, but again, it does not belong in a requirement.

   All of requirement R7 should be deleted.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Simulators can be a critical and effective training tool. The problem with mandating their use is that some systems are not complex enough to warrant (technically or economically) the use of simulators for training their respective operators and the current applicability criteria of the standards process do not allow for flexibility of appropriate exemptions.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments:

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: All the risk factors associated with the training standards should be "Lower" risk factors. These training activities will be occuring outside of the "real-time" operating arena and therefore violations of these requirements cannot in and of themselves cause impacts as defined by "High" and "Medium" risk factors. An entity would be required to violate several core operating requirements prior to the violation of a training requirement having any material impact on a system. At that, the linkage of an event to a training activity would be extremely subjective.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: Measures should be modified in accordance with our comments on the Requirements.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: We appreciate the significant effort that went into the current draft of PER-005-1. As stated previously, for future flexibility of the "training" standards, we would encourage the drafting team to re-evaluate its creation of the "new" standard. We would suggest rolling in the appropriate requirements (JTA concept and the other requirements into the existing training standards (PER-002 applicable to BAs and TOPs and PER-004 applicable to RCs)).

    Simply, this would allow flexibility for the industry to evaluate future training requirements that could enhance Interconnection reliability and apply them with a higher degree of precision and appropriateness.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

    ☒ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: The standard needs additional drafting prior to evaluating the implementation plan.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: Requirement R6.5.2 needs to be deleted. Joint training exercises can be beneficial, but to mandate these at this time is not justifiable. The requirement is inappropriate since it would put an entity's compliance with the requirement, subject to cooperation by another entity.

    Language requiring a training needs assessment of System Operators performing task identified in R1 under delegations agreements is extremely burdensome. As an example, a neighboring company may be performing the regulating function of an entity, since some form of regulation will be identified in the JTA - the entity will be forced to perform a training needs assessment on that company performing regulation service to determine if their operators can successfully perform the tasks identified in the JTA - even if those operators are being trained by there own company.

    We therfore, disagree with the use of the parenthetical expression (including any contract System Operator or System Operator performing tasks identified in R1. under delegation agreements). The use of this caveat throughout the standard creates confusion and ambiguity in that it makes the requirements dificult to read and dilutes clarity.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Edward J. Carmen	
Organization:	Baltimore Gas and Electric Company	
Telephone:	410-597-7289	
E-mail:	edward.j.carmen@bge.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☒ **RFC**	☐	5 — Electric Generators
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☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments:

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments:

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☐ No

    Comments:

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☐ No

    Comments:

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☐ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: Longer time will be required to comply with this standard. Many organizations are currently not properly staffed to accommodate this increased workload.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: R6.5.2 requires all real-time operating positions to participate in at least one multi-entity exercise per year. BGE is a member of PJM. PJM currently conducts 2 Restoration drills per year. BGE includes as many operating personnel as possible in these drills, however, it is not feasible to include all operating positions.

    BGE recommends revising this requirement to read: "involving as many real-time operting positions as possible…….and, ensure that all operating positions participate in these drills at least once every 5 years".

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

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Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs, ISOs, Regional Reliability Councils
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: FRCC System Operator Subcommittee

Lead Contact: **Eric Senkowicz**

Contact Organization: **FRCC**

Contact Segment: **2**

Contact Telephone: **813-289-5644**

Contact E-mail: **esenkowicz@frcc.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Steve Joseph	**Tampa Electric Company**	**FRCC**	**1**
Linda Campbell	**FRCC**	**FRCC**	**2**
Alan Gale	**City of Tallahassee**	**FRCC**	**5**
Ed DeVarona	**Florida Power & Light**	**FRCC**	**1**

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☒ No

   Comments: The language as written does not indicate that reliability-related tasks should be associated with the reliability of the Bulk Electric System. As we will detail later, we feel it is important for these training standards to have appropriate flexibility to accommodate training requirements on an entity basis. For example, for an entity that primarily operates a distribution system, it is much easier for them to define their auditable training program if the standard is clear on requirements applying to BES related tasks. LSE and DP operating tasks that do not affect the BES should not be subject to the auditability of those that do. ie. these tasks do not affect the reliability of the Bulk Electric System and as such should not be auditable by NERC.

   Recommendation: Change the language to reflect Bulk Electric System reliability-related tasks.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: As written, the proposed standard requirement, requires the development of individual training plans for each system operator that is part of the training program. For many entities that do not have extensive training programs and resources, this is particularly burdensome and unnecessary from a practical standpoint. From a reliability perspective, the "training needs analysis" should focus on the training needs of a company, to achieve reliable operation of its facilities. The program should then make sure that all relevant personnel are adequately "trained" within the bounds of the defined program (as defined within the JTA) which will ensure the most reliable operation of that entity's facilities and subsequently ensure the overall reliable operation of the Bulk System.

   Individual training needs assessment may be a "next" step in the training evolution, but at this time we feel that any "training needs analysis" must be based on the needs of the entity as a whole (as defined within the JTA) and not the individual operators.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☒ No

Comments: We agree with the concepts. We would prefer to have defined terms and intervals if necessary. We are uncomfortable with the term "incumbent" and "refresher". Right now, these terms are unbounded (without definitions) and could be subject to various interpretations and misrepresentations. Therefore any terms referenced in the requirements, if not defined within the requirements, should be bounded by the addition of a definition within the standards glossary.

ie. Entry-level could be defined as the interval necessary or training components required for a NERC "certified" individual to become knowledgeable or functional at relevant tasks of the JTA for a particular entitiy's facility and operations (could be referred to as a qualification process). Once an operator becomes "qualified" then he/she enters the training program as a System Operator subject to a company's continuing training requirements.

The term refresher training is also too vague and should either be bounded by EOPS requirements (as already exists), or referred to as continuing training or defined in the standards glossary.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☒ No

   Comments: The plan should address the training needs of the organization and how those needs will be met by providing the appropriate training to the required personnel (see answer to #2).

   It is also imperative that the requirement include a reference to allow organizations to deviate from the "anticipated" training plan. This is based on the continuously evolving nature of real-time operations along with identification of operational issues and training needs that are developed as a result of system disturbance analysis.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: Not a "High" risk factor .

   Language should provide for the use of subject matter experts (SMEs) in the development and delivery of training with the direction and assistance from an individual that has competency using a systematic approach to training.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This requirement is overly prescriptive and is inappropriate for this Reliability standard. The format is a good tool for development. We support its use as it also provides consistency with the NERC CE process, but again, it does not belong in a requirement. It sends the wrong signal to the industry, one where compliance should focus on the specific details of individual training activities and away from overall quality of an organizations training initiatives.

   All of requirement R7 should be deleted.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Simulators can be a critical and effective training tool. The problem with mandating their use is that some systems are not complex enough to warrant (technically or economically) the use of simulators for training their respective operators and the current applicability criteria of the standards process do not allow for flexibility of appropriate exemptions.

   We would also suggest that PER-002 and PER-004 remain in-place to provide the industry the flexibility and granularity that is appropriate to differentiate requirements for Reliability Coordinators (very complex) and BAs and TOPs, which in some cases may not be very complex systems (see overall comment below on question #15). We would suggest that the enhancements provided by the current draft of PER-005 be "rolled" into the content of PER-002 and PER-004.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments:

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

☒ Yes

☐ No

Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: All the risk factors associated with the training standards should be "Lower" risk factors. These training activities will be occuring outside of the "real-time" operating arena and therefore violations of these requirements cannot in and of themselves cause impacts as defined by "High" and "Medium" risk factors. An entity would be required to violate several core operating requirements prior to the violation of a training requirement having any material impact on a system. At that, the linkage of an event to a training activity would be extremely subjective.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: Measures should be modified in accordance with our comments on the Requirements.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: We appreciate the significant effort that went into the current draft of PER-005-1. As stated previously, for future flexibility of the "training" standards, we would encourage the drafting team to re-evaluate its creation of the "new" standard. We would suggest rolling in the appropriate requirements (JTA concept and the other requirements into the existing training standards (PER-002 applicable to BAs and TOPs and PER-004 applicable to RCs)).

    The requirements may be duplicated as necessary in both standards, but preservation of the individual standards would allow the flexibility to create appropriate requirements and improvements to the standards without having to address ALL

stakeholders affected by the standard. It is difficult to justify that the same training requirements should be applied to a 100 MW (peak load) Balancing Authority as to a Reliability Coordinator that evaluates the wide area view of a 45,000 MW system.

Simply, this would allow flexibility for the industry to evaluate future training requirements that could enhance Interconnection reliability and apply them with a higher degree of precision and appropriateness.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☐ Yes

☒ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: The standard needs additional drafting prior to evaluating the implementation plan.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: Requirement R6.5.2 needs to be deleted. Joint training exercises can be beneficial, but to mandate these at this time is not justifiable. The requirement is inappropriate since it would put an entity's compliance with the requirement, subject to cooperation by another entity.

    Language requiring a training needs assessment of System Operators performing task identified in R1 under delegations agreements is extremely burdensome. As an example, a neighboring company may be performing the regulating function of an entity, since some form of regulation will be identified in the JTA - the entity will be forced to perform a training needs assessment on that company performing regulation service to determine if their operators can successfully perform the tasks identified in the JTA - even if those operators are being trained by there own company.

    We therfore, disagree with the use of the parenthetical expression (including any contract System Operator or System Operator performing tasks identified in R1. under delegation agreements). The use of this caveat throughout the standard creates confusion and ambiguity in that it makes the requirements dificult to read and dilutes clarity. If the DT has a concern they should address it explicitely through a proposed definition or adding a caveat to the applicability section. Conceptually does the caveat imply that an entity will be responsible for tracking the training activities of another entity that it may have delegated a tasks to? If this is the intention, it will lead to significant confusion from a compliance measurement standpoint as far as an entity demonstrating compliance to the requirement by having to audit another entity's training records / program and demonstrate compliance on behalf of multiple entities.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Allan George	
Organization:	Sunflower Electric Power Corporation	
Telephone:	620-275-0737	
E-mail:	ageorge@sunflower.net	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
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☒ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*
Brian McDowell	Sunflower Electric Power Corporation	SPP	

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments: Limit standard to exactly what is required, no need to over extend bounds if intent

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: See 1

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: Can competent be defined as NERC Certified?

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: R.7.1. ,R.7.2., R.7.3., R.7.6., R.7.9., R.7.10., ARE ADEQUATE

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Not every RC, BA, or TO, needs or can afford a simulator. The current requirements include simiulator hours so to maintain certification operators seek training facilities that provide them.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: It is not really necessary, CEH record keeping is adequate.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: What is definition of Risk Factor

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: only M1, M4, M6, M7, M11, M12 are needed

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: Review need only entail list of operators, credentials, and outline of program and progress in program

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: I do not believe this extensive standard is necessary with the current CEH program that requires operating personnel to become and remain certified and CEH's must be maintained.Currently training and training requirements and registration of CEH's seems to detail that all Certified operators are being adequately reained in all areas. Is that not the intent os EOPS, simulator and class room training? Each Entity designs their training program to train oparators based on tasks they percieve as critical to its system. This Standard for compliance seems too aggressive for all companies to comply, most don't have budget or personnel to maintain this extensive standard.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Ron Falsetti	
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NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☒	2 — RTOs, ISOs, Regional Reliability Councils
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

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Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☒ No

   Comments: We agree that the majority of the information listed in R1.1 throguh R1.7 need to be collected to describe a tasks to be performed by the personnel to whom the training program is intended. However, we do not feel that a NERC standard should mandate an operating entity to perform a job task analysis to develop this list and the corresponding training program.

   An industry-wide standard shold stipulate that these operating entities (RC, BA and TOP) each develop and deliver a training program that will bring their operators to the competency level required to perform those tasks that the entity is responsible for as specified in the Functional Model. We view the listed items in R1 to be part of the task and work environment description, which can be combined with those listed in R7 and included in the training program document. A way to capture this would be to put the key attributes that must be included in a training program in a template to facilitate compliance audit.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☒ No

   Comments: The training need analysis should identify the training needs and the full spectrum of competency level that must be achieved/demonstrated to perform the tasks covering all levels of the system operator being trained. An entry level operator may need to start at a lower training level than their more experienced counterparts. Experienced operators, including those who have been certified, may refresh their training at an intermediate level depending on the gaps identified. Analyzing the training needs for a specific group of operators and develop a program specifically for that level may render the program too specific and hence ineffective.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☒ No

   Comments: Please see our response to Q2.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments: The will ensure that the training need is reviewed at least annually and a business plan with resource commitment provided.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☒ No

   Comments: The desired results of this standard are operator competency and the responsible entities developing and providing the training. An industry-wide standard should not have to require each entity to provide competent instructors. Incompetent instructors will soon be replaced by competent ones as soon as the entities fail to secure a sufficient number of certified operators to meet other NERC requirements. Also, by having such a requirement, what follows would likely be "instructor certification" to assess instructors' competency. This is not necessary.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: This is a good list for inclusion in the traning manual. However, many of them are a repeat of R1's and as such, can be combined with those listed in R1.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments:

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☒ No

   Comments: This will help the entity in its annual review of its training plan, but is part of the annual training plan itself (4, above).

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☒ No

    Comments: Yes, but it's too fine a requirement and appears micro-managing. It is also covered by the annual training plan activities. We suggest that this requirement be combined with other annual review requirements or be removed.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: A well-structured training program is an important component to ensure that the concerned operating entities bring their system operation personnel to the competency needed to meet the entities' certification requirements and to assure operating reliability. However, actions taken by the operators in accordance with NERC standards have a direct impact on system reliability, not the training program itself. There are a number of requirements in this standard that are rated High and Medium, which we feel should at best be rated Medium and Lower, respectively, as they have a much more remote, secondary impact than actual operation. For comparison, for example, mitigating limit violation is assigned a High level; maintaining generation-load-interchange balance is assigned a Medium level. These requirements have a more direct impact on ensuring system reliability and controlling system conditions than developing and delivering the training program.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: We do not agree with the requirements at this time so we are unable to agree with the measures, at least not until the requirements are revised and the measures adjusted accordingly. Please also see comments/suggestions in Q19.

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: Same as above.

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: Please see comments in Q19.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: We cannot assess this until after the implementation plan is revised according to the changes made to the standard.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

    The IESO appreciates the opportunity to comment, and commends the drafting team for its breath of consideration in coming up with this draft standard. However, we feel that the standard can better focus on the key requirements for training.

    (1) We feel that the standard should focus on the following 4 key requirements to hold each of the three operating entities (RC, BA and TOP) responsible for:

    a. Developing a training program which lists the tasks (specifically for the RC, BA and TOP as listed in the Functional Model) to be performed and the competency level required to perform the tasks;
    b. Delivering the training program;
    c. Recording, tracking and assessing progress of the persons receiving training;
    d. Planning, providing resource, reviewing and adjusting (as necessary) the training program annually.

    (2) Individual organizations may require the operators to perform other tasks but such tasks and the corresponding training requirements are outside of the scope of an industry-wide NERC standard from the viewpoint of the tasks assigned to the three functional entities. The training requirements to perform these other tasks should not be included in this standard.

    (3) Some of the items listed in R1.1 to R1.7 support the job/task description. They can be put as attachment template requirements that the training program shall include, and to aid assessment of compliance. Similarly. some of the items listed in R7 can be put into a template as requirements to prove delivery of the trainiing program.

    4. Based on the above philosophy, we recommend the SDT to consider revising the draft standard as follows:

    (i) Keep R1 (for Key Requirement 1a above) and revise it as appropriate to require each of the 3 entities to develop a training program for their operating staff to perform

the task associated with the entity's registered function; put some of R1.1 to R1.7 to a template attachment;
(ii) Combine R2, R3, R4, R9 and R10 (for Key Requirement 1d above) to become a requirement for an annual planning, review, and maintenance exercise for the training program.
(iii) Keep R6 (for Key Requirement 1b above), and put some of the items in R7 in a template attachment for proof of training delivery.
(iv) Keep R8 (for Key Requirement 1c above), and revise it as appropriate.
(v) Remove R5

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☒ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: A job task analysis should be performed to identify the tasks assigned to each operating desk but the "analysis" does not need to be updated when there is a new or revised task or tool. Shouldn't this section say the task list must be updated when there is a change?

   R1.1 Reliability-related tasks can be performed under many different conditions. How would we identify all the conditions these tasks could be performed under and what purpose does this provide? We believe this should be removed and is not required in the Standard.

   R1.2 We support including "The actions to be taken in performing the task, including identification of references and tools used in performing the task." in the Standard.

   R1.3 "Identification of whether the task is performed alone or as part of a team." BCTC does not support including this in the Standard. Many tasks need to be performed either "alone or as part of a team". We believe this should be removed and is not required in the Standard.

   R1.4 "The criticality of the task with respect to reliability." BCTC does not support including this in the Standard. Seprating out tasks as being "critical" to reliability implies other tasks are less important. There is no benefit to separating "critical" tasks from others. We don't see how this could be measured properly and all tasks that are reliability related should be considered important.

   R1.5 "The frequency of performing the task." BCTC supports including this in the Standard. It can be helpful in developing the yearly training plan and including infrequency of tasks in the refresher or continuing training program.

   R1.6. "The knowledge, skill, and experience needed to perform the task." BCTC supports including this in the Standard.

   R1.7 "The criteria for successful performance of the task." BCTC does not support including this in the Standard. Separately identifying the criteria for "successful performance" of each individual task is not necessary. BCTC fully supports a learning assessment at the end of each learning activity to determine if the learning objectives were met for the activity. We believe this will be a burden in developing a job task analysis for System Operators and does not provide and benefit to add performance critiera to "every task" performed.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

☒ Yes

☐ No

Comments: These should simply be referred to as a training assesment for "initial" training of a System Operator and a training assessment for "continuing" training. It is not necessary to say they are "entry level or newly hired experienced". A proper gap analysis measuring each System Operator against all the tasks required to be performed will determine how much training is required. However, R3 requires a training needs assessment of each operator to identify performance gaps (we prefer competency gaps or a gap analysis) at least once "every year." This indicates every operator must be assessed against the entire task list at least once a year. BCTC believes this type of assessment of system operators should occur with some regularity but every year is unnecessary and will lead to work that will not produce any real results, different than a simple gap analysis would. BCTC suggests a simple gap anlysis every 2 to 3 years, or when job duties change significantly, will get the results needed.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

☒ Yes

☐ No

Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

☒ Yes

☐ No

Comments: It is not clear what "anticipated duration of the topic" is meant to define in the annual training plan. It is expected that "anticipated duration" for a topic to be trained on would be different for entry level SO's vs refresher training for incumbant SO's. BCTC believes that "anticipated duration" for training topics should not be a requirement as it is different in each context listed in subsections under R4.

R4.2 suggests that training should solve all gaps in performance. BCTC would suggest that the standard should say that when an assessment determines training is the solution to a gap in performance it shall be done. Only after an assessment after a performance issue should the decision to train be required.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

☒ Yes

☐ No

Comments: The key phrase in this question is "entitites" verify the competence of those that develop and deliver training. BCTC believes the wording in the standard means that our entity will determine competency to train our system operators. BCTC

does not support outside entities such as NERC or the Regional Reliability Organizations determining if training personnel are competent.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: BCTC generally supports the list in R7 as a good record of training. We note that the list is similar to the data required for learning activities to be approved by the NERC Continuing Education Program. The "NO" response is due to the following we believe are not necessary or beneficial:

   R7.7 "Identification of the conditions under which the associated task is performed (as identified in R1.1.)." As mentioned in Question #1, BCTC does not support identification of the conditions when a task is performed. Most tasks need to be performed under many conditions.

   R7.9 "Objectives and assessments that duplicate the criteria for successful performance identified in R1.7. and mastery of the knowledge and skills in R1.6." As mentioned in Question #1, separately identifying the criteria for successful performance of the task is not necessary. Successful "performance criteria" is usually executing the skills and knowledge necessary to do the task resulting in the desired outcome, essentially doing the task without mistakes. Additionally, many topics in operator training don't support the concept that an operator can demonstrate performance of the task at the end of the learning activity. The task likely can't be performed until an operating condition on the system calls for the task to be performed, which may be days or weeks after the training took place. A "performance criteria" can be a general operating philosophy such as safe and error free operating of the system. We don't believe it is required to add performance critiera to "every task" performed.

   R7.10 As mentioned in Question #1, BCTC does not support including this in the Standard. Many tasks need to be performed either "alone or as part of a team" depending on normal operating or emergency conditions at the time. Whether a task is generally performed individually or as a team is a fundamental part of identifying the task and does need a separate reference in the standard.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with “hands-on” experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: BCTC has simulator that models our system but we also recognize the benefits associated with other computer-based simulators whether generic or company specific. We have also used table to exercises and simulated events, not using the company simulator that have been as effective in training. BCTC does not support including this as a requirement in the Standard. Effective "simulation" of either normal operation or an emergency event is the goal and can be accomplished through many different methods of simulation.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☒ No

   Comments: The question asks if a record of each operators training that shows the tasks mastered and the tasks where performance needs improvement. This is somewhat different than the requirements listed in R8 which seem to deal with meeting performance criteria. We caution that the administrative work already involved with Certifcation, Continuing Education along with external and internal training has grown by 10 fold in the past 3 - 4 years. BCTC supports keeping a training record for each operator but does not support the following:

   1. A separate record listing all the tasks identified in the job task analysis and whether the operator has "mastered" that individual task or still "needs improvement" is more detailed recording keeping than is needed. The training program and annual training plan for each operator is designed to fill identified gaps in an operator's skill and knowledge needed to accomplish the tasks, thus the concept is addressed in designing the training plan rather than requiring a separate list of the operator's standing with the tasks.

   2. Section R8 seems to focus on documenting how the "performance critiera" is met. It indicates appliable entities must track their operator's progress in using training to obtain the knowledge, skill and experience needed to "meet the performance criteria specified in R1.7. for the tasks identified in R1." BCTC supports a learning assessment at the end of each learning activity to determine if the training objectives were met for the class. Separately identifying the criteria for successful "performance" of the task is unnecessary. Successful "performance criteria" is usually executing the skills and knowledge necessary to do the task resulting in the desired outcome, essentially doing the task without mistakes. Additionally, many topics in operator training don't support the concept that an operator can perform the task at the end of the learning activity. The task likely can't be performed until an operating condition on the system calls for the task to be performed, which may be days or weeks after the training took place. A "performance criteria" can be an operating philosophy such as safe and error free operation of the system but it will be unbenficially burdensome to add performance critiera to "every task" performed.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments: BCTC supports a requirement for yearly evaluation of the training program "to meet the criteria for successful performance as identified in R1.7." provided the performance criteria is not task specific as mentioned above in Questions #1 and 8. We would support a simple gap analysis be performed to determine what worked and what didn't work.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments: This requirement does not specifically say the words "training materials" and it should say this. The measure says "training materials".

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

☐ Yes

☒ No

Comments: BCTC notes NERC documents on violation risk factors state, "These reliability-related risks are proposed for use when determining a penalty or sanction for a violation of that requirement." Thus the purpose of the risk factors is for use when determining a penalty or sanction. Also from NERC documents, the risk factors are intended to represent the following in the operating timeframe:

High = A requirement that, if violated, could directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures;

Medium = A requirement that, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures;

Lower = A requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. A requirement that is administrative in nature;

With the understanding that violation risk factors are not to rank the importance of a requirement to the industry but rather as an aggragating factor in determining penalties and sanctions, BCTC offers the following comments on the violation risk factors in the draft Standard:

R1 is listed as HIGH and while it is clearly important to reliable operations, R1 does not fit the definition of HIGH and should be changed to MEDIUM or LOWER.

R2 is listed as MEDIUM and BCTC agreesor reduce it to LOWER.

R3 is listed as HIGH and while it is important to developing a training program, R3 does not fit the definition of HIGH and should be changed to MEDIUM or LOWER.

R4 is listed as MEDIUM and BCTC agrees or reduce it to LOWER.

R5 is listed as HIGH and while it is important to developing a training program, R5 does not fit the definition of HIGH and should be changed to MEDIUM or LOWER.

R6 is listed as HIGH and while it is important to developing a training program, R6 does not fit the definition of HIGH and should be changed to MEDIUM or LOWER.

R6.5.2 is listed as MEDIUM and BCTC agrees but does not understand why this sub-requirement receives an independent violation risk factor. Is it possible this is meant to apply to R6.5 and both of its sub-requirements R6.5.1 and R6.5.2? If so, since BCTC

recommends R6 (all of it) be changed to a MEDIUM or reduce it to LOWER it would make this sub-requirement designation unnecessary.

R7 is listed as LOWER and BCTC agrees.

R8 is listed as MEDIUM and BCTC agrees or reduce it to LOWER.

R9 is listed as MEDIUM and BCTC agrees or reduce it to LOWER.

R10 is listed as MEDIUM and BCTC agrees or reduce it to LOWER.

12. Do you agree with the Measures in the proposed standard?

☒ Yes

☒ No

Comments: BCTC agrees the measures are worded appropriately for the Requirements as written. BCTC and others will be requesting changes to the Requirements which will require corresponding changes in some wording of the Measures. We would expect the measures would change with any changes to the requirements that come from industry suggestions.

13. Do you agree with Compliance Monitoring section of the standard?

☒ Yes

☒ No

Comments: The RRO is identified as the Compliance Monitor for the Standard. The Compliance Monitoring Period and Reset section lists all the potential methods the RRO may use to monitor compliance. BCTC recommends Self-certification, Period Audit (required 3-year compliance audit, not the readiness audit), and Triggered Investigations. The Data Retention requirements are more detailed than necessary and BCTC recommends a simple requirement for all training documentation and records to be retained for three-years, similar to the requirement of the NERC CE Program.

14. Please identify any Regional Differences that you feel should be included in this standard.

☒ No known Regional Differences

Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☒ Yes

☐ No

Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

☐ Yes

☒ No

Comments: BCTC recommends field testing should be the practice for all NERC Standards. Field testing reveals administrative concerns and sometimes larger concerns that were not foreseen. All standards should be subject to at least a brief field testing period.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☒ Yes

    ☐ No

    Comments: The plan says in part that PER-004-1 will be replaced with this Standard. The existing Standard is PER-004-0. Did the document mean to say PER-004-0 or is there a new PER-004-1 in progress that BCTC is not aware of or was this a typo?

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: There was no question directly associated with R6 to allow comments. Requirements R4 and R6 address similar training areas with the primary difference being R4 is for the "annual training plan" and R6 is the "implementation" of the training plan. It is difficult to write NERC standards but some of the Standards repeat the same words just in a different context. Can the drafting team look at combining R4 and R6 into a single requirement addressing the separate issues of an annual training plan and the associated implementation of the plan? Separate Measures could be written to address these two areas even though they are contained within a single Requirement.

    BCTC supports a requirement for development, delivery, and evaluation of system operator training using a "systematic approach to training" as required in this Standard. Even though a specific principle of a systematic approach to training makes it more effective, that doesn't mean that principle should be part of a mandatory reliability standard. A reference document describing many of the "how" to do a quality job of using the systematic approach would be helpful. Some of our comments to remove parts of the Standard may fit well within a reference document that is not used to judge compliance.

    This standard may be the single most expensive standard to come from NERC for the electrical industry. It is important to ensure the words are clear and we know what is expected and not open to interpretation. We believe it also important to test this standard in industry to ensure it will work for its intended purpose. BCTC would request NERC to take the time to ensure the administrative requirements are gradually introduced and they do not take away time from training efforts already ongoing. The industry has been working through Certification and Continuing Education requirements that have been refined over the past 3 years and these requirements have been good to ensure training efforts and requirements get better within our industry. We hope that you will come back with a standard that is simple to understand not burdonsome on us to follow on top of the training requirements for CE and all the other efforts ongoing.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Michael Calimano	
Organization:	New York Independent System Operator	
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NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☒ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

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Lead Contact:

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments:
   In response to the specific question posed: The NYISO agrees that the information listed should be included in a Job Task Analysis. However, the format of the question focuses on the details of the requirement (i.e. what goes into a JTA) and presupposes the need for the requirement itself.

   The NYISO does NOT agree that a Job Task Analysis should be a NERC mandated requirement. The customized subjective nature of job tasks precludes a 'standardized' requirement. Any approach that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: There should not be a training needs assessment. There is a competency adequacy assessment. If the individual is competent no action is required. If the individual is not competent, action must be taken to attain competency. Entry level, new hire or incumbent status has no place in a standardized approach to training, unless you are intending to assume competency based on incumbency. If an individual does the task every day, the competency assessment is based on real time job performances. There is no need training needs analysis outside of the standard competency evaluation for the tasks.

   No different actions are taken in assessing competency based on employment history. The competency test is based on the task, not the work history of the individual

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☐ Yes

   ☒ No

   Comments:

The NYISO supports a requirement that all responsible entities must have a System Operator Training Plan for maintaining current competencies, learning new competencies, and practicing needed competencies. The Plan should include training that covers all the experience levels for the specific respective entity (not for some undefined common need).

There is absolutely no basis in the standardized approach to training based on years of service or the 'newness' of the task addressed. Requiring a formal structure of "entry level", "continuing" and "refresher" training is a useless administrative overhead mandate. ADDIE has no references to years of service. ADDIE is competency and performance based requirement. The competency test is based on the task, not the work history of the individual

R2 and R3 can be replaced by a single, ongoing competency evaluation requirement

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

   Comments: If each and every training need for each individual can be defined a priori, a year in advance, individual annual plans may have meaning. Since, tasks and individual performance frequently change over time - take NERC standards as an example - there is no value added in requiring an individual plan at any level of detail beyond a general overview. Only a broad brush overview of training activities is a useful expenditure of effort on an annual basis.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☒ No

   Comments: A requirement that each entity verify trainer competency mandates each entity to assume an expertise that is outside the scope of those reliability entities.

   The NYISO supports ongoing Training Programs that employ systematic approaches to training. Such programs, including NERC's current Continuing Education program, include a feedback component from the participants in the areas of content and instructor competency. Although participant verification of the competency of the instructors is an inherent component of such systematic approaches, a standard on verification is unnecessary

   As note in the responses to Q1 and Q2, any standard that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard. To meet the FERC directive the standard must include a definition of competence and the measures used to assess that competence.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: R7.7 is unnecessary, and should be deleted. Once you identify the task - the task should incorporate the triggers for its implementation in its definition. Referencing the task is sufficient for record keeping.

   7.9 are unnecessary, and should be deleted. Including a statement that the requirements "duplicate" a previously defined requirement should be a dead give away that the requirement is unnecessary. Successfully mastery measures of the task should be included in the task documentation.

   7.10 is unnecessary and should be deleted. "Practice", alone or in teams, is an excessively vague and pointless requirement. Once the individual has demonstrated competency (a.k.a., practicing once), how many times should the individual re-demonstrate (a.k.a. practice more)? Five times? Ten times? One hundred times? Practice is not a requirement.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with “hands-on” experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The NYISO does not support requirements that mandate "How to" carry out a given standard. Although the NYISO supports the use of near-real time Operating Training simulators, the NYISO recognizes a simulator is not a necessary tool for conducting valid excercises.

8. Do you agree that there should be a record of each system operator’s training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: The NYISO agrees that a training results tracking system is a valid Training task, but questions whether or not this task rises to the level of a NERC standard.

   Note:
   Question 8 refers to Requirement 8. However, Question 8 asks a question (relating to documenting operator needs) that is not part of Requirement 8 (relating to training only)

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☒ No

   Comments: No. They should continually evaluate the compentency of their people. If the personnel competency is maintained, studying the training program in total is unnecessary.

   An annual evaluation of training programs is a good practice, it is important but it is not required. As with other proposed requirements, this requirement does not provide a quantitative measure related to evaluation.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☒ No

    Comments: No. Making a criteria statement on the topic of "updates" has the effect of requiring administrative burden independent of a systematic approach to training. If training is developed and delivered based on clearly defined tasks, required actions, and clearly stated measures of competency, "updating" training is moot. R10 is redundant and should be removed. There is no way that a entity could comply with R1 and R4 and simultaneously violate R10. Remove R10.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

☐ Yes

☒ No

Comments: Vilolation risk factors have meaning when applied to specific tasks within a systematic approach to training. Violation risk factors associated with standards requirements have no function outside of the justification for specific measures and compliance portions of the standard. That tidbit of measures and compliance development should not be retained in the standard text.

12. Do you agree with the Measures in the proposed standard?

☐ Yes

☒ No

Comments: M2 and M3 can be combined. M3 would do the job by removing the word "incumbent". The measure would then apply to entry level, incumbent, and progression qualifications.

Same thing applies to M6, M7 and M8. It is all the same requirement. One person's entry level training is another person's refresher training. Continuing training is entry level training applied to people who are already employed.

See final comments

13. Do you agree with Compliance Monitoring section of the standard?

☐ Yes

☒ No

Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

☒ No known Regional Differences

Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☐ Yes

☒ No

Comments: Since I do not endorse the standard as written, it is too early to say that the implementation schedule is appropriate.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☐ Yes

☒ No

Comments: Do to the massive change in the industry, a field test would seem prudent.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: Since I do not endorse the standard as written, it is too early to say that the implementation schedule is appropriate.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:
    In addition to the comments supplied here, the NYISO supports the comments provided by NPCC and the IRC.

    R6.5.1 - the 32 hour of emergency training - has no place in a standard that lays out requirements for a systematic approach to training, and should be removed. The 32 hours is a number that was pulled out of the air and has no relation to operator competency at reliability related tasks. It is completely indefensible from a compliance point of view.

    This standard could be boiled down to the essential elements by requiring a standardized approach to training without detailing detailed requirements for entry-level, new operator and incumbents, nor program structure requirements.

    R1 is the requirement to conduct a task analysis. No problem

    R2 and R3 are poorly worded requirements to evaluate competency in performing reliability related tasks. Adding artificial categories based of levels of work experience has no bearing on the content, format, or frequency competency evaluations. How about:

    R 2/3 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct a competency performance assessment of System Operators to identify mismatches between actual performance and the criteria for successful performance for each position performing reliability related tasks.

    R4 and R6 address the need develop and implement a plan. There is absolutely no value to having a plan, if it is not implemented. The reliability entity should get no credit at all for developing a plan that is not implemented. There is no value added in specifying a specific training structure. How about:

R 4/6 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall develop and implement an ongoing training plan developed from the training needs assessments. The plans shall identify the topics, anticipated duration of the topic, and target schedule for delivery.

R5 is the requirement for qualified trainers. I question the need to use two subsections instead of just listing the three requirements.

R7, R8 and R9 are the requirements to maintain training records, assessments records and training content records. How about:

R7/8/9. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall maintain competency evaluation and training records:

Individual competency evaluation records
R7/8/9.1. For each system Operator, reliability-related task identified, the date and method used to assess whether the System Operator's performance meets the criteria specified.

Individual training completion records
R7/8/9.2. For each system operator, activity the date, the duration of the activity, and completion status for training activities.

Individual Training Activity Content records
R7/8/9.3 For each training activities - the addressed task, the duration of the activity, overall success rate of participants, feedback comments of participants

Training Plan records
R7/8/9.3 For all training activities - the addressed task, overall success rate of participants, feedback comments of participants

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☒	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
☒ **NPCC**	☐	4 — Transmission-dependent Utilities
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☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: NPCC CP9 Reliability Standards Working Group

Lead Contact: **Guy V. Zito**

Contact Organization: **Northeast Power Coordinating Council**

Contact Segment: **2**

Contact Telephone: **212-840-1070**

Contact E-mail: **gzito@npcc.org**

Additional Member Name	Additional Member Organization	Region*	Segment*
David Kiguel	Hydro One Networks	NPCC	1
Kathleen Goodman	ISO-New England	NPCC	2
Greg Campoli	New York ISO	NPCC	2
Al Adamson	New York State Rel. Council	NPCC	2
Roger Champagne	TransEnergie Hydro-Quebec	NPCC	1
Dave Little	Nova Scotia Power	NPCC	1
Bill Shemley	ISO-New England	NPCC	2
Ron Falsetti	The IESO	NPCC	2
Alden Briggs	New Brunswick System Operator	NPCC	2
Mike Gopinathan	Northeast Utilities	NPCC	1
Guy V. Zito	Northeast Power Coor. Council	NPCC	2

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: The tasks to be performed by a system operator should be defined by the standard drafting team (SDT). A training program should then be developed by the entity to assure that any and all operators are proficient in those tasks. The standard need not get into the specifics of the training program.

   NPCC participating members also believe that an operating entity should not be mandated to perform a formalized job task analysis to identify a list of tasks and the corresponding training program.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: Before taking an unsupervised shift a system operator needs to have demonstrated proficiency, regardless of past experience. The training provided must meet the need of the individual regardless of the level of experience to ensure no gaps are in the training or any assumption of knowledge where there may be not be sufficient background.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: Again, the SDT needs to identify the knowledge set for a system operator.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

   Comments: NPCC participating members believe R4 should only be a restatement of this question (each entity should have a training program that assures the proficency of

the system operators) and not include the details as presently stated in R4 of the draft standard.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☒ No

   Comments: NPCC participating members believe that although it is important for the trainer to have basic understanding and competency of the subject matter, it is not a measurable metric for compliance. Many believe that incompetent trainers will result in system operators failing the "test" and that they will ultimatly be identified for more simplistic performance based processes than need to be stated in this standard.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: NPCC participating members believe that it is unnecessary to be overly perscriptive in how the training is performed. This should be left to the discretion of the entity. The purpose is to produce system operators that meet a defined level of proficency. If the operator can prove a level of proficiency, the training was succesful.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: Although NPCC participating members believe that a simulator holds great value in conducting operator training, it is not an absolute necessity. Many smaller entities have expressed concern that the cost of a simulator is excessive and depending on the size of their area may have the appropriate cost-benefit ratio. Valid training exercises may be conducted effectively without it.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☒ No

   Comments: The entity should have records showing the system operators have either mastered a proficency or have not but does this rise to the level of importance that it needs to be stated in a NERC-ERO Reliability Standard? This type of information will be maintained in a normal "course of business" and doesn't need to be specified here.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments: NPCC participating members believe that a yearly review is laudable and good practice, but should not be a requirement.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

☒ No

Comments: NPCC Participating members expressed concern on how the phrase "accurately reflects" can be quantified and measured and requests clarification. If this is not practical then it should be removed as a Requirement.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☒ Yes

    ☒ No

    Comments: A violation risk factor of High means a violation has the potential to directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or did or could have placed the bulk power system at an unacceptable risk of instability, separation or cascading failure.

    R1. No. A lack of conducting a formal job task analysis is not a high risk factor to the BPS. It should be Medium

    R4. No. This should be "low." This is purely administrative.

    R8. No. It should be Lower and mainly administrative.

    R9. No. It is Lower and administrative.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: NPCC Participating members have expressed some disagreement with the Requirements as written so the measures are in question as well.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments: NPCC Participating members have expressed some disagreement with the Requirements as written so the measures are in question as well.

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☒ Yes

    ☐ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

☐ No known conflicts

Conflict: Conflicts with sections of PER-002.

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

☐ Yes

☒ No

Comments: NPCC Participating members cannot comment or agree to the implementation plan until a final draft of the standard is available.

19. Please provide any other comments you have on this standard that you haven't already provided above.

Comments: NPCC Participating members believe this Standard is focused on the training program and not on the purpose of training. It is not important that an entity has a training program, rather it is vital that the entity has an effective training program, and one that is measurable by NERC.

The Proposed Standard defines actions the entity must take but it does not define a performance measure that is tied to improving System Operator competency. For instance, if a gap is identified and training is provided, then the entity has met the proposed Standard's requirements. But there is no assessment of successful training or poor training. Whether a gap is closed or remains after training does not matter to this Standard.

This Standard should be limited to a requirement for the entity to identify and document required skills, a requirement to define an acceptable time period to acquire the skill, a method of documenting the Operator's skill, a method to reassess the Operator's skill if a gap was measured, and removal from Operation if a gap persists.

The proposed NERC Standard is too keen on documentation of lesson plans, and not sharp enough on defining valuable objectives. Specific comments are:

1. R1. What is a Job Task Analysis? Needs to be defined. There is a difference between a list of tasks the Operator performs and a step by step instruction of performing the tasks.

2. R1.1 Needs to be more specific. What is meant by conditions?
R1.2 This needs to be defined for the level of specificity required.
R1.4. I think all real-time reliability related tasks are equally critical. The SDT should otherwise define levels of criticality criteria.
R1.5 What is the SDT looking for in frequency definition? How is it defined?
R1.6 Knowledge, skill and experience levels are not needed for JTA. All system operators, regardless of experience levels, should be able to perform reliability tasks.

3. R4 This does not belong in a Standard. The details are the responsibility of the entity.

4. R 6.2 How many hours of continuing training is required.
R6.3 The word “Requirement” should not be spelled out.
R6.4 Is not needed. Seems a repeat of R6.3
R6.5.1 Is the PER-002 R4 requirement going to be deleted?

5. R7. Training , the hours of training, the method of delivery, and objectives do not need to be documented to have a successful training program. Suggest eliminating this requirement.
6. R8. Training should be performed until an Operator is competent in a task.
7. R10- Not needed in a Standard.

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Gerald A. LaRose	
Organization:	New York Power Authority	
Telephone:	(315) 792-8202	
E-mail:	gerry.larose@nypa.gov	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments: An important question resulting from the language used in the Requirement is: What is meant by "company-specific reliability-related tasks"? One interpretation could be "only those reliability-related tasks that are specific to a given company's operation" (as opposed to generic operator tasks). A second interpretation could be "that subset of all of the tasks derived from the JTA that are designated as reliability-related". Throughout the draft Standard there are repeated references to "tasks identified" and "reliability-related tasks identified". A clearer understanding will substantially aid in determining how onerous this Standard will be.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☒ No

Comments: The Trainer competencies cited in 5.1.2 (systematic approach) and 5.2.1 (delivery) are subjectively determined at best and may force many entities into the untenable, and undesirable, position of having to completely outsource their training needs.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: While desirable, such a simulator tool may be prohibitively expensive to procure and maintain and update. "Lessons Learned", tabletop drills and functional exercises are acceptible alternatives that accomplish the same goals.
   Re 6.5.2: It is extremely difficult to schedule enough such inter-entity drills to be able to capture each Operator's participation on an annual basis given shift requirements, etc. A three-year per-Operator participation requirement, equivalent to an Audit span, is more readily accomplishable.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments:

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: In my opinion, only R6, the implementaton of a System Operator training program, merits a "High" VRF as a Requirement that, if violated, could… place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures". The remaining Requirements with a proposed "High" VFR are contributory in nature and are more appropriate as "Medium".

12. Do you agree with the Measures in the proposed standard?

    ☒ Yes

    ☐ No

    Comments:

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: The proposed Standard is an admittedly "complex standard with many requirements" and the Responsible Entities will require time and resources to examine their current practices, complete the requisite analyses and implement the programs to meet the Requirements of these Standards. An Implementation Schedule akin to that required for CIP-002 through CIP-009, i.e., varying degrees of parallel (as opposed to serial) compliance with specific milestones (Begin Work, Substantially Compliant, Compliant, Auditably Compliant applied to all Requirements at the same time as opposed to strict Auditable Compliance for each grouping within the serial stages) over four years rather than two. Many budgets for 2007 are already locked-in and the first serial stage in particular (R1, R2, R3) will be costly.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: The proposed Standard is complex in nature and contains many Requirements and will be potentially costly to many Entities. The Responsible Entities will require time and resources to perform the depth and breadth of work mandated. An Implementation Schedule over four years rather than two better complements the five-phases of the systematic approach to training and will significantly increase the probability that this effort be accomplished in a complete and thorough manner with the costs spread over a realistic time frame.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: The phraseology "including any contract System Operator or System Operator performing tasks identified in R1 under delegation agreements" (R3, R6, R8) has in some instances been interpreted as applying to System Operators in a Local Control Center and in other instances to field personnel who perform SCADA-controlled or manual switching functions. The NERC Functional Model, as best as I know, contains no such reference. If the Drafting team is proposing that these Requirements extend beyond the what is in the Functional Model, e.g., RC and TOP, it should succinctly state such in a manner that will cause no confusion when the balloting commences.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

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Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Howard Rulf	
Organization:	We Energies	
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E-mail:	Howard.Rulf@we-energies.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
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Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments:

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☒ No

   Comments: A company can do this for its internal training. For training from a NERC CE provider, whether instructor led, on-line, or video, this verification should be done by NERC and entities should not need to re-verify what NERC should have already done.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: A company can do this for internal training. For training from a NERC CE provider, whether instructor led, on-line, or video, R7.1 through R7.5 and R7.8 should be satisfied by supplying the NERC CE number for the class. Entities will still need to perform R7.6, R 7.7, R7.9, and R7.10.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: As long as this can also be satisfied by using a generic simulator such as the EPRI OTS.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments:

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments: I agree with the wording of question #10. Wording in R10 is different than this question though. It requires that the training program reflect the "current" operating environment. R10 should not be worded to preclude training on known changes/improvements before they are implemented.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: All requirements except R6 (and its sub requirements) are administrative. None of the requirements put the BES one event away from a cascading failure.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: M9: R7.1 through R7.5 and R7.8 should be satisfied by supplying the NERC CE number for the class.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☒ Yes

    ☐ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☒ Yes

    ☐ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	James Hinson	
Organization:	ERCOT	
Telephone:	512.248.3997	
E-mail:	jhinson@ercot.com	
NERC Region		**Registered Ballot Body Segment**
☒ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☒	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
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☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

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Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments:

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: What deems high criticality and how will a designation be made?

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☐ No

   Comments: Not sure

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments: How would we designate mastering a skill versus just attending a class and getting a 70%

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☒ Yes

    ☐ No

    Comments:

12. Do you agree with the Measures in the proposed standard?

    ☒ Yes

    ☐ No

    Comments:

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☒ Yes

    ☐ No

    Comments: How do they confirm that any implementation has taken place

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☒ Yes

    ☐ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

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Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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E-mail:	jshaver@atcllc.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☒ **MRO**	☐	3 — Load-serving Entities
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Group Name:

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: ATC believe that Requirement R1.1 and R1.7 go too far in prescribing what has to be included in a job task analysis.

   ATC does support the requirement that a job task analysis be performed but does not agree that with the need to prescribe the sub-bullets.

   ATC recommends that the SDT delete Requirements R1.1 – R1.7.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: ATC does not believe that a separate training program needs be created for entry-level, newly-hired, and incumbent system operators. It is our position that a single training program can be developed to serve as the umbrella. Under the training program umbrella, individuals' training needs can be matched to those course offerings most appropriate to their level of expereince and area of need. Requiring the documentation of multiple training programs for the same tasks at varying levels does not enhance system reliability or lead to more educated system operators. Rather, it adds to the administrative burden placed on the trainers, thereby reducing the amount of time available to develop and deliver quality training.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: Although ATC agrees with the question as posed above, this is not consistent with the way the proposed standard is written.

   In addition, we believe that this standard should be written in a way that offers entities the flexibility to meet some or all of their training program requirements via external NERC certified course offerings under the recently approved NERC Continuing Education (CE) Program.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

   Comments: ATC believes that a training needs assessment should be completed on an annual basis and that, this needs assessment would be one of the items taken into consideration in creating the training program; however, to create a separate training plan for each individual operator is overly prescriptive. ATC asks for the following changes:

   Changes to Requirement 4

   Each RC, BA and TO shall have an annual training plan developed from the training needs assessment that identifies the topics, anticipated durations of the topic, and target schedules.

   In conjunction with this change, ATC requests the deletion of Requirements 2 and 3.

   ATC also recommends that the SDT delete Requirements 4.1 – 4.4. These requirements are overly prescriptive. They increase the administrative burden on a company and do not enhance system reliability or lead to more educated system operators.

   ATC recommends that NERC rewrite this standard in light of NERC's Continuing Education (CE) Program, as there will likely be a large amount of overlap in acquiring CE hours in order to maintain an individual's certification and in fulfilling organizational training requirements. Many companies will be looking to the CE Providers to help them meet their NERC CE hour certification requirements and their internal training program needs at the same time. The organizational training requirements are already tied to an individual's need to maintain certification via PER-003 which requires organizations to staff positions having the primary responsibility for real-time operation of the Bulk Electric System with certifed NERC personnel.

   If this standard fails to recognize the Continuing Education Program, which has already been approved by the NERC BOT, this standard, as written, will largely serve to increase administrative costs in the industry with minimal additional reliability benefits.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☒ No

   Comments: ATC believes that Requirement 5 is both unnecessary and overly burdensome. We recommend that this requirement including its sub-requirements be deleted from the standard.

   Again, ATC believes that this standard should be written in a way that offers entities the flexibility to meet some or all of their training program requirements via external

NERC certified course offerings under the recently approved NERC Continuing Education Program. Therefore, the burden for providing qualified instructors lies with the CE Provider and NERC in approving Individual Learning Activity (ILA) applications.

As written, this standard creates duplicative requirements on the entity to track CE Provider credentials and substantiate the credentials of training provided by external instructors. This is the job of NERC under the CE Program. Failure for this standard to acknowledge an existing, NERC approved Continuing Education Program, merely because it has been developed by a separate arm of NERC is insufficient justification to place this additional administrative burden and cost upon the industry. The standard, as written, requires each industry member to create its own set of training records which in large part will be duplicative of the data that NERC has already captured under its CE program.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: ATC does not agree with the requirements in R7 nor its sub-requirements. (R7.1 – 7.10) Again the SDT has ignored the reality of NERC CE Program requirements in writing this standard.

   ATC recommends that Requirement 7 be deleted along with its sub-requirements. At a minimum, an exception for collecting and reporting this data should be made for those programs that have been previously approved by NERC as part of their CE Program.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: ATC does not believe that this is the correct place to insert any drill exercises requirements. Any additional training requirement that NERC wants to place on certified operators should be made under the certification arm of NERC not through the standards process.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: Although ATC agrees with the question as posed above, this is not consistent with the way the proposed standard is written; "should" versus "shall."

   In addition, if an entity is required to document this information, the entity should be allowed to view the completed CE course information in regard to their employees in the NERC database once implemented. Currently, NERC has restricted access of this information to the individual alone. Apart from having this flexibility, this requirement is duplicative and increases the administrative burden on the industry without enhancing system reliability or leading to more educated system operators. Why make an employer report the same information that NERC already has available to a large extent via its CE Program?

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

Comments: Although ATC agrees with the question as posed above, this is not consistent with the way proposed Requirement 9 is written. ATC is supportive of conducting an annual review of training programs; however, Requirement 9 is overly prescriptive. ATC proposes that the following change be made:

Each RC, BA and TO shall evaluate its System Operator training program to determine if the training is meeting their system operators' needs and, if not, use the results to update the program to correct identified deficiencies.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

☒ Yes

☐ No

Comments: Although ATC agrees with the question as posed above, this is not consistent with the way proposed Requirement 10 is written. ATC proposes that the SDT rewrite this requirement to better align it with the question. Any training program should be reviewed prior to conducting the actual training; however, NERC should not require an annual review of all training programs if a program is not scheduled for delivery in that year. Requiring an annual review of all classes, regardless of anticipated delivery schedule is unduly burdensome and of no value to the industry. Lastly, this requirement fails to take into account the NERC CE Program requirements. Existing classes previously approved and delivered under the NERC CE Program must be reviewed and updated prior to delivery. The process for ensuring that this happens is auditable under the NERC CE Program and should not be duplicated here.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: ATC believes that only Requirement 6.5.1 should be given a High Violation Risk Factor. All other requirements should be either medium or lower.

    R1 lower
    ATC suggests that R2 and R3 be deleted.
    R4 lower
    ATC suggest that R5 be deleted
    R6 medium
    R6.5.1 High
    R6.5.2 should be deleted
    R7 should be deleted
    R8 lower
    R9 lower
    R10 medium

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: ATC disagrees with those measures that are tied to requirements that we believe should be deleted.

    Measure 12 requires updates to training programs even if that program is not scheduled for delivery in that training year. This measure should be rewritten to require that training programs only need to be reviewed prior to delivery and that the delivered program reflect current industry standards and topology.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

☒ No

Comments: ATC does not agree with the implementation schedule with the proposed standard as written. ATC strongly recommends that the implementation schedule be extended for an additional one to two years based upon the way the standard is currently written.

Phase 1 should be 18-24 months
Phase 2 should be 24-36 months
Phase 3 should be 36-48 months

ATC may agree with the implementation schedule as is if the SDT modifies the requirements in accordance with ATC's recommendations.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☐ No known conflicts

    Conflict: ATC believes that this proposed standard as written is duplicative and in conflict with the requirements of NERC's CE Program. The SDT should align this standard with the NERC CE Program.

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: See refer to ATC's response to question 15.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: In general, the requirements of this standard are overly prescriptive and unduly burdensome on the industry as they ignore the existing continuing education requirements already in place under the NERC CE Program.

    In addition, this standard needs to be flexible enough such that it allows entities to meet either a portion or all of its organizational training requirements via external NERC approved CE training vendors, under the existing CE Program, without requiring the entity to re-document and justify training courses previously approved by NERC.

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
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☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Operations Training Working Group

Lead Contact: **Allen Klassen**

Contact Organization: **Southwest Power Pool**

Contact Segment: **2**

Contact Telephone: **501-614-3347**

Contact E-mail: **jgunnell@spp.org**

Additional Member Name	Additional Member Organization	Region*	Segment*
Ron Maki	Aquila	SPP	
Allen Klassen	Westar	SPP	
Richard Appel	Sunflower Electric	SPP	
Dave Millam	Aquila	SPP	
Mike Wech	SWPA	SPP	
Ron Green	AEP	SPP	
John Kerr	GRDA	SPP	
Fred Meyer	EDE	SPP	
Jerry Ohmes	BPU	SPP	
Hermes Arevalo	OG & E	SPP	

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: The standards should require a JTA, but the information collected and specified in R1 through R7 should be separate and used as a guide (e.g., and appendix). This would allow each entity to come up with it's own. Actions as a result of a task can be difficult to measure and document. How many categories of criticality are there? Is this a standard or a recommendation? If this is a requirement, what is the minimum requirement for each? Is this a requirement for the industry or for each individual operator?

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: This item requires clarification. Is the standard requiring each person within each company to provide a black start/restoration drill at least once per year? If this is the case, the possibility of meeting this standard is unlikely. Regional and subregional training must be available for entities to participate at the level required by R6.5.2

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments: A three-year plan would be better than an annual plan. A plan for a group of operators (e.g., entry-level system operators, newly-hired experienced operators, qualified/certified operators) would make better use of training. This would also offer refresher training to other operators on the same task.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: Prefer that the standard use the term "qualified" instead of "competent".

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This is a great list of activity components for the perfect program, but is not necessary for all activities and topics of training. These should be a part of a "Guide" provided as an attachment to the standard not a part of the standard as measured requirements.
   When some needs are discovered due to poor performance or lack of knowledge, the training may be done informally on the job by another qualified operator via assignment by a supervisor. Having this documentation for every training activity is not practical, but it is a good guide to strive for in formal training.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with “hands-on” experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This is good practice, but it may not be practical for every company to have a simulator that reflects the company's actual system. Simlulated practice can be sufficient for many entities.

8. Do you agree that there should be a record of each system operator’s training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: This question does not match R8. The standards should require training records, but not rating records.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

Comments: Yes, this is good in theory, but it should be a "guide" not the standard. This would be very difficult to put into practice. You can still deliver the training and point out updates rather than delaying necessary training.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: None of the violation risk factors should not be rated as "high". R1, R3, R5, & R6 are all marked as "high". They should be dropped to a violation risk of "medium". R8 is "medium" but should be dropped to "low" because it is just record keeping. R9 should drop from "medium" to "low".

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: Since there are areas within the standard that we disagree with, it is impossible to agree with the Measures in the proposed standard.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: If the standard is implemented as is, it would require additional training staff and the purchase of an LMS, which would make the implementation unrealistic. All of these requirements should begin on January 1 so that compliance is consistent for the year. We would prefer to see some examples of quality JTAs. We believe it's necessary to have some benchmark standards that can be used across the industry.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: Realistically implementation may take more than two years. Refer to question #15.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: We would prefer to see some examples of quality JTAs. We believe it's necessary to have some benchmark standards that can be used across the industry. This standard would require an unrealistic amount of record keeping, considering current staffing. Few entities have the resources, staff, and time to meet the demands of this standard.

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Jim Gunnell	
Organization:	Southwest Power Pool	
Telephone:	501-614-3347	
E-mail:	jgunnell@spp.org	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☒	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☒ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments: In addition, I believe the JTA should include a list of industry-standard, reliability-related tasks in addition to the company-specific tasks. This would set a standard level of best practice across the industry.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: In addition, I believe the analysis should include not only the mismatch between the criteria for successful performance and actual performance, but it should also include:
   a gap analysis between knowledge criteria and actual knowledge, and
   a gap analysis between knowledge (what you know) and action (what you're able to do)
   Therefore there are three gap analyses:
   1. Performance Gaps
   2. Knowledge Gaps
   3. Knowledge/Action Gaps

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: I would add to the categories of competency: competency in assessment methods to ensure valid and reliable assessment tools which measure both knowledge and performance.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: I would like to see Training Provider Qualifications added to the list.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments: I'll reiterate the importance of having an assessment tool or tools that can clearly assess "mastery". This should be a rubric or assessment with levels of competency. The more granular, the better. If we rely on a simple checklist, we'll look back to discover an overabundance of Master Operators, which could reflect a false sense of competency across the industry.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments: At least once per year. These evaluations should include recommendations for improvement and implementation timelines for making such improvements. Participant feedback should be a component of these evaluations.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments: This seems to be more of a recommendation than a rule. I would be interested in seeing a plan to enforce this requirement. If it's not enforceable, the level of accountability diminishes.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☒ Yes

    ☐ No

    Comments:

12. Do you agree with the Measures in the proposed standard?

    ☒ Yes

    ☐ No

    Comments:

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☐ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☐ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

    ☐ No

    Comments:

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    ☐ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☐ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	James H. Sorrels, Jr.	
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NERC Region		**Registered Ballot Body Segment**
☒ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☒	3 — Load-serving Entities
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Lead Contact:

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Additional Member Name	Additional Member Organization	Region*	Segment*

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: AEP supports that the standard should require a Job Task Analysis, but the information, collected and specified in R1.1-R1.7, should be identified separately from the standard, as a "Guide", such as an attachment or appendix to the standard.

   R1.1 should specify the condition categories (e.g., Emergency, Normal, Contingency, etc.).

   R1.2. should not require actions to be taken in performing the task unless the action is another task or sub-task. Actions may require a matrix or flow chart based on an individual's understanding of basic concepts. This could be very challenging in some cases, especially where there are a number of different actions/responses that are practical, and correct, that would yield similar results. As a result, we have documented operating procedures and plans (e.g., EOP and Black Start plans). R1.2 should simply read: Identification of references and tools, including actions if appropriate, used in performing the task.

   R1.4 is vague as it needs to specify the different categories of criticality (e.g., Low, Med, High).

   R1.6 should have the word experience removed or replaced with a different word or phrase within the requirement. Is experience intended to mean operator/trainee assessment by the trainer rather than experience over a time period of doing the task? If an individual has the knowledge and skill to perform the task, experience over time may not be relevent, such as for new tasks involving new tools. Experience comes with performing the tasks. Experience in doing a task may not be practical or possible (except as a lab type demonstration exercise during a training activity) until the tool/task has been proven and utilized in real-time operation. R1.6 should read: The knowledge and skill needed to perform the task; or, The criteria for demonstration of the knowledge and skill to perform the task.

   R1.7 - The criteria for successful performance is difficult to measure/document for many tasks. R1.7 seems redundant to R1.6, which is duplicative if a demonstration of knowledge and skills has been specified.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

Comments: Yes. However, the wording of requirements R2 and R3 should be changed to clarify that the intent is for the needs analysis to be performed for each System Operator job classification not for each individual System Operator.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

☐ Yes

☒ No

Comments: No. AEP agrees with the concept, but not with the details of the requirement. It should be clear that each applicable entity needs to have an annual training plan for each job classification, not plans for each individual operator. In R4.4, the use of the term "continuing training" is not consistent with the use of the term "continuing education" and "continuing training" in the NERC Continuing Education Program Administrative Manual. In the Manual, the term continuing education/training (per the Manual, the terms training and education are used interchangeably) is used to describe any training that extends the basic knowledge and skills required to do a job. Whereas, R4.4 uses the term in the context that continuing training is just one type of training used to extend the basic knowledge and skills to do a job. The use of terminology in the proposed standard should be consistent with existing NERC usage and definitions.

R4, R4.2, R4.3: It is not practical to formally train on all reliability tasks on an annual basis. Training is provided for job classification as a result of a training needs analysis and prioritized to address the greatest needs first. Conducting continuing/refresher training to the whole group assures that all get refreshed. Whereas, refresher training on critical tasks already being performed correctly by the group in a job classification, would not need training. If an operator is not performing a task correctly, immediate training or intervention by a mentor or supervisor may be required instead of scheduling a formal structured training session, that is documented in the training program.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

☐ Yes

☒ No

Comments: No. However, AEP does believe that each entity should have an annual plan for each job classification of system operator. AEP supports training identification at the job classification level, not at the individual level. The training needs assessment performed for R2 should apply for all entry level employees for a job classification, similarly the assessment for R3 should apply to all non-entry level job classifications.

New/entry level employees should not be performing reliability-related tasks (R4.1) on an unsupervised basis as they would not be qualified or NERC certified. The initial training plan should be a part of the annual training plan, but may best be referenced as an attachment or appendix to the annual training plan. It should be a stand alone program separate from that of the continuing education program for incumbent

operators. Initial training program time frames for entry-level employees, with little to no experience, generally may extend longer than a year. Annual refresher training, as in R6.5, is the part of the training plan that should give focus on identifying and scheduling training activities for qualified/certified operators. The training plan could require new entry level operators to receive the same annual refresher training given to qualified/certified operators, in addition to the training they receive in their initial training program, so as to reinforce the concepts of their initial training program.

R 4.2 and R4.3 should be combined. If the refresher training of R4.3 is completed, it will address gap refresher training of R4.2, if it exists. The term performance gaps is a somewhat ambiguous term that is open to interpretation.

R6 only needs to say "shall implement its System Operator training program as identified and specified in R4". It doesn't need the redundancy of R6.1 - R6.4

R6.5 should then be moved to be included as R4.5 as a type of training identified and targeted by the annual training plan.

R6.5.2 is too broad and vague. Need to clarify that "involving all real-time operating positions" only means involving real-time positions within a control center, not field personnel. Also, the wording needs to be clear that not all operators have to participate in the joint exercise required in R6.5.2.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

☐ Yes

☒ No

Comments: No. Competency in this area would not be easily measured. Being competent reflects such attributes as being qualified, capable, fit, and adequate. AEP does not disagree that entities should use competent and qualified trainers. The issue is how to measure that. Additionally, we do not believe there exists a "qualification certificate" that would be pertinent to the trainers in our industry. Therefore, R5 should be a guideline not a requirement.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: While this is a very good list of activity components, AEP believes that these components should be a part of a "Guide," provided as an attachment to the standard, and not be a part of the standard as measured requirements.

   When developmental needs are discovered due to poor performance or lack of knowledge, the training may be done informally on the job by another qualified operator via assignment by a supervisor. Retaining this documentation for every training activity is not practical, but it is a good goal to strive for in formal training.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with “hands-on” experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: A simulator that reflects the operator's actual system is the best and is preferred over generic simulators. However, the use of generic simulators have benefits and should not be excluded. The use of simulators should not be exclusive of table top exercises as they too can prove to be very helpful.

8. Do you agree that there should be a record of each system operator’s training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: AEP believes that there should not be a record specific to tasks needing performance improvement, but rather should be evaluated at the group level. Training issues are best identified by group and training provided to the group.

   To the extent that individual performance issues occur, this becomes an individual job performance concern that is addressed through various human resource management approaches.

   Documentation for each task as specified by R8 would require extensive data entry into an LMS, in addition to the documentation needed to provide before entering data into an LMS. Another factor to consider is enabling the LMS to accept/accommodate such documentation for view by administrators and operators. The implementation schedule

would need to be reconsidered if these types of changes are necessary in the LMS system.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☒ No

    Comments: No. We agree with the concept, just not the wording of R10. As presently worded, it should be a guideline not a requirement. Keep in mind that NERC itself has a history of using old reference material and training documents. NERC certification exams do not test the user on the most recent and current Reliability Standards, rather for practical purposes, the exam has a cut-off date for which Standard Revisions will be included in the exam. This typically results in an examinee being tested on some Standards that are not the current version at the time of their exam. Again we agree in concept that all entities need to keep their training materials current and applicable. But, for this to be a requirement, it needs different and more measurable criteria then presently in R10.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

☐ Yes

☒ No

Comments: No.
R1 should be rated as Lower Risk. It is not the lack of documenting job task analysis that would place the system at risk, it is the quality of the performance of those tasks. While, a job task analysis may be important to developing a good training plan, it does not meet the requirements of the High Risk definition for NERC Violation Risk Factors.

R2 should be rated Lower Risk. Newly hired and entry level operators should not be operating the system unsupervised until they are qualified. Nonperformance of R2 will not directly impact the reliability of the system, but rather would be an indirect cause over time. R2 does not meet the VRF definition of High Risk.

We concur with R3 being rated High Risk, as R3 relates to assessing successful or unsuccessful performance of reliability tasks which directly effects reliability of the system.

R4 should be rated Lower Risk as having a documented annual training plan is administrative in nature and lack of the documentation (the Plan) does not in itself mean the required and proper training has not and does not occur.

R5 in its present state should only be a guideline thus does not need a VRF. Conceptually, the qualification of the trainer would be Lower Risk as it is not the trainer that performs the actual reliability tasks. That is not to say having qualified trainers is not important.

R6 should be rated Medium Risk. While proper implementation of the Training Plan is important, it does not directly lead to unreliable operation of the system, but rather is an indirect cause. Thus, it does not meet the NERC VRF definition of High Risk.

We concur with R7 being rated a Lower Risk as it pertains to documentation which is administrative in nature.

R8 should be rated Lower Risk, as this is an administrative function. Nonperformance to R8 does not directly affect reliability, but could be an indirect cause.

R9 should be rated Lower Risk. While this an important administrative task, it by itself would not be a direct cause of unreliable operation.

R10 in its present form should not be a requirement, thus should not have a rated risk factor. How does R10 mesh with the concept of using a "generic" simulator for some drills and exercises as asked in question #7, when R10 states the training program must "reflect the current operating environment"? A generic simulator may be on a pseudo system which does not reflect any entity's current operating environment. This is just an example of why the present wording of R10 is inadequate.

12. Do you agree with the Measures in the proposed standard?

☐ Yes

☒ No

Comments: No.
As AEP does not agree with all the requirements in the proposed standard, we can't agree with all the measures in the proposed standard.

M1 - Conceptually we agree, just need to make changes to R1.1 - R1.7 as previously commented.

M2 - Shall have available for inspection the results of its latest training needs analysis for each entry-level System Operator job classification.

M3 - Shall have available for inspection the results of its latest training needs analysis for each System Operator job classification.

M4 - Agree.

M5 - Disagree. M5 is not a measure and R5 in its present state is not measurable. By what criteria is each Region and each auditor going to use to determine if an entity's documentation of qualifications is satisfactory?

M6 - Disagree. What is meant by training activities? Do you mean have available an entity's entry-level training plan? Or do you mean have available an entity's entry-level training material? Or do you mean something else?

M7 - Conceptually agree. However, we desire to see the standard use terminology in a manner consistent with the NERC Continuing Education Program Administrative Manual, which uses the term refresher training as a subset of continuing training.

M8 - Consider combining M7 and M8. In essence, the measure is to provide training records.

M9 - This measure would not be needed if R7 becomes a guide rather than a requirement of the standard as we suggest in our previous comments.

M10 - Remove M10. R8 is not appropriate nor is M10 which is the measure for R8. This is getting too close to making public record an individual's job performance appraisal(s), which heretofore have been treated as confidential between an employer and the employee.

M11 - Agree.

M12 - Just because an entity provides it latest versions of its training program, that will not necessarily demonstrate that the information within the program accurately reflects the current operating environment as required in R10. As stated previously, R10 needs work.

13. Do you agree with Compliance Monitoring section of the standard?

☒ Yes

☐ No

Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

☒ No known Regional Differences

Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☐ Yes

☒ No

Comments: No. AEP does not agree with the proposed implementation plan.

AEP recommends a phased implementation approach over a 3-year period. Compliance to Requirements 1-3 should start 18 months after FERC approval, compliance to Requirements 4-7 should begin after 30 months, and compliance to Requirements 8-10 should begin after 36 months.

Additionally, AEP disagrees with the retiring of PER-004-1 Requirements 3 and 4 upon implementation of this proposed standard. The drafting team incorrectly assumes the job task analysis for a Reliability Coordinator's System Operators would obviously include these requirements as tasks to be performed by a Reliability Coordinator. But if the NERC Standards do not have a requirement such as PER-004-1 R3 and R4, then why would they include this in their job task analysis? It would be a step backward for reliability to assume that every entity has the same interpretation of what an entity is to do and not to do. If we could make this assumption, then we wouldn't need Mandatory Standards. AEP can only support the retiring all of PER-004-1 if the drafting team can show where else in the NERC Standards an RC is required to perform what is contained in PER-004-1 R3 and R4.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: This appears to be a repeat of question 15 above. AEP would like to see this changed to phase-in time period of 3 years.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: The Standard Drafting Team needs to be careful to not include verbiage in the Requirements and Measures that could lead to entities having to provide an individual's job performance evaluation as part of the documentation for training. These are private and confidential personnel records that should not become part of public record.

    This proposed standard needs additional work. AEP continues to agree conceptually with the purpose of the proposed standard and the need for such a standard. We would suggest that the drafting team take another hard look at what should be considered requirements and what are just good guidelines. The standard needs to focus on requirements. Presently, we believe it contains a significant amount of detail that should be considered guidelines, not requirements.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	John Kerr	
Organization:	GRDA	
Telephone:	(918) 825-1053 ext 1158	
E-mail:	jkerr@grda.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☒ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: These need additional information for clarification. The process for the JTA should be more of a guide instead of a standard.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: Certification for new operators is already in Standard PER-002. After certification, exposuer to training for each operator should be the same program.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: Once certified, entry-level system operators should be encluded with experienced training in order for them to be exposed to all available materails.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

   Comments: Each enity should have a training plan for the trainig process of the job. This would not leave out anyone (entry-level system operators) during the training process.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: However, who determines the qualifications for this. The word competent leaves room for several loop holes.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This list is too repetitive and complicated. Again, this whould be a guide and not a standard.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Affordable, effective, and reliable simulation technology does not yet exist. This could be a financial burden on small entities. Table top drills at this time are more effective.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: This could be complicated and time comsuming. Delete R8.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☒ No

   Comments: Evaluation should occurs after each training session, but evaluation of the entire training program should not be required each year.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments: Once again, this should be a guide and not a standard.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: The risk for a violation should be no more than medium to low. The levels may need to be reconsidered.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments:

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: The self-certification would be more in line for every 3 years or when standards change.

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: The implementation as is would be a considerable expense for everyone. Examples and explainations should be give first.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments: Any new training standard should be field tested before implementation without penalty.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☒ Yes

    ☐ No

    Comments: After some serious adjustments, this could be inplementated in two years. No as it is now however.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: Examples, explainations and studies should be conducted first. Most of this standard would put a burden on all entities.

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	John Bussman	
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E-mail:	jbussman@aeci.org	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
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☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

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Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: The goal of this standard is to ensure that operators are trained to maintain the BES. If a company has a process in place that already performs this task why must there be a standard that mandates a direction as how one will determine if someone in trained. For example: The NERC PER-002 states that a company will have a process in place to have operators trained to maintain the bulk electric system (BES)

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: We believe that traing needs to be provided for new hire and entry level, however, not necessarily using R1.1 - R1.7

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: However, not necessarily by R1.1-R1.7 criteria

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments: A company should have as a minimum a training program that provide contiuing training at least annually.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: Partly I do not agree with section concerning R1.1 to R.1.7

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: However, NERC needs to allow a company to be able to work with vendors or other sources for simulator time in the entity does not have a company - specific simulator.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments: We think there should be system operator training records. However, not necessarily in the way stated

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☒ No

    Comments: If materials are being used on a dailey, weekly and monthly basis then updates before using should not be required. There should be an annual review.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: Don't agree with R1

12. Do you agree with the Measures in the proposed standard?

    ☒ Yes

    ☐ No

    Comments:

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: I don't agree with requirement 1

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments: However, I don't think this standard is necessary.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☒ Yes

    ☐ No

    Comments: If the requirements in R1 can be generic to allow the companies to prepare a traing program.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: This procedure is to restrictive. If a company can show that there are procedures in place that show how operators are trained to maintain the BES than we shouldn't have to prepare a Job Task Analysis and maintain it. There is more than one way to ensure operators are trained. I was not a Nuclear operator, however, I don't recall that job task analysis's are prepared. The operators are trained on a simulator over a 6 month period and then follow procedures when in the field. I do not believe there are JTAs. I think preparing what this standard states would overburden a company that has a process in place to ensure an operator is properly trained to maintain the BES under all conditions.

    A second comment is that PER-002 request that the RRO and NERC define a set of training program ojectives. Is SERC also going to have a set of stanards the entities must follow. Again this stanard is very restrictive.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
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	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Midwest Reliability Organizaton (MRO)

Lead Contact: **Todd Gosnell**

Contact Organization: **MRO for group (OPPD for lead contact)**

Contact Segment: **2**

Contact Telephone: **(402) 552-5670**

Contact E-mail: **wgosnell@oppd.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Alan Boesch	NPPD	MRO	2
Terry Bilke	MISO	MRO	2
Robert Coish	MHEB	MRO	2
Ken Goldsmith	ALT	MRO	2
Carol Gerou	MP	MRO	2
Jim Maenner	WPS	MRO	2
Tom Mielnik	MEC	MRO	2
Darrick Moe, Chair	WAPA	MRO	2
Dick Pursley	GRE	MRO	2
Dave Rudolph	BEPC	MRO	2
Joe Knight, Secretary	MRO	MRO	2
27 Additional MRO Members	Not Named Above	MRO	2

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments: In R1.1, the MRO recommends the addition of some examples for the definition of conditions i.e. emergency, normal, etc…; also in R1.4, add some examples of the levels of criticality.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments: Some entities have procedure documents for activities such as switching where an individual will go out and perform the task under the direct supervision of a SO, does this standard apply to those individuals that are under the direction of the SO?

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☐ No

Comments: The region is being requested to define competency as it is seen from the perspective of the regional members, as this definition may vary from member to member. The competency of the trainer will be reflected in how each entities' system operators meet the myriad of requirements in this standard. If the entities' system operators training meets the requirements in this standard, the assumption can be made that the trainer is competent. This requirement is not needed. This is a business decision and should not be a requirement in this standard.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: The industry should have a standard template to assist industry trainers to meet all the requirements listed in R7.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: The MRO believes that user friendly simulators should be made available to the applicable entities, it does not believe that these entities should be required to have these simulators on site.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments:

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments: It appears that based in the requirements listed under R9. that this is an ongoing exercise and is accomplished annually if the requirements are met. Further, please clarify the intent of R9.3.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: The MRO recommends that the SDT review the VRF associated with the following requirements: R1, R3, R5, R6, R8, and R9; with respect to the fact that each of the requirements is calling for an administrative action to be taken which does not directly meet the definition of High Risk.

12. Do you agree with the Measures in the proposed standard?

    ☒ Yes

    ☐ No

    Comments: The MRO recommends that the SDT review M5 in the event R5 changes, in order for M5 to remain consistent with any changes made to R5.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☒ Yes

    ☐ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: The MRO recommends that compliance measurement and enforcement wait until after the two-year phase-in period. There is concern that measuring compliance on only a portion of the standard will lead to a disjointed standard where compliance is not measured uniformly.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: The MRO believes that as long as this standard is not in conflict with other standards that require hours of emergency training (i.e. PER-003), then it is fine; however care needs to be taken to prevent these conflicts from arising in the future.

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Jule W. Tate, III Manager-Power System Operations Training	
Organization:	Progress Energy Corporation	
Telephone:	919-546-4792	
E-mail:	jule.tate@pgnmail.com	

NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☒ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☐ No

   Comments:

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☐ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☐ No

   Comments:

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☐ No

    Comments:

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☐ No

    Comments:

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☐ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☐ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☐ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☐ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: Overall, Progress Energy agrees that the Initial and continuing training plans should be tailored to the System Operator job function as identified from the job task analysis. However, it appears the inidividual GAP analysis requirements of the proposed standard are beyond the INPO training model for nuclear reactor operators. Progress Energy recommends that during initial and continuing training, gaps in performance versus the system operator job function expectations can be identified, especially in simulator exercises. From this identificaiton of gaps in performance expectations identified in continuing training, remedial training (refresher training) can take place immediately in the training session to ensure learning takes place, individual performace meets the job funtion requirments, and most importantly the gap is addressed immediately. To be consistant with the INPO training model, there is no need for a formal individual gap analysis to be conducted annually outside of the continuing training process. Also, if a gap is identified in this proposed standard's required annual assessment, the standard does not require the operating entity which has identified the gap to provide any immediate remedial action and thus the operating entity is creating a litigation issue.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs, ISOs, Regional Reliability Councils
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Transmission & Reliability Organization

Lead Contact: **Kathy Davis**

Contact Organization: **Compliance**

Contact Segment: **1**

Contact Telephone: **423-751-8023**

Contact E-mail: **kadavis@tva.gov**

Additional Member Name	Additional Member Organization	Region*	Segment*
Mike Fielden	TVA	SERC	1
Randy Haynes	TVA	SERC	1
Bill Byrom	TVA	SERC	1
Chuck Owens	TVA	SERC	1
Chris Donilon	TVA	SERC	1
Jerry Landers	TVA	SERC	1
Ricky King	TVA	SERC	1

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments: We do not agree with the use of the word "experience" in R1.3. It is very subjective and difficult to quantify effectively or consistently. We suggest clarification of the meaning or just strike it all together.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

   Comments: Does the term "each system operator" refer to individual operators or individual functions? (refer to reply #12)

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: We do agree that the use of a simulator is the best way to practice drills and exercises, but we also believe that utilities should have the flexiblity to use other means (e.g. tabletop) to train and practice skills…..especially very small utilities that may not be able to afford a simulator.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: We agree with the first part of the sentence that states that there should be a record of the operator's qualifications, but do not agree that there be a continuous process of evaluation for the purpose of new training plan development.
   If there is a developmental problem, it will be handled within the organization's Performance Management Process. Overall performance improvement is addressed at the function level in the Continued Training process.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: Was the term "Violation Risk Factor" defined ? What criteria and methods were used to determine Violation Risk Factor levels?
    A "High" on any of the requirements seems a bit extreme. If High is used a justification should be providedl.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: The use of the word "each" in M2 , M3 and M6 made us wonder if it pertained to a person or funtion. We feel that it would be too administratively cumbersome to be at the individual operator level.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☒ Yes

    ☐ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☒ Yes

    ☐ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

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Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Kathleen Goodman	
Organization:	ISO New England	
Telephone:	(413) 535-4111	
E-mail:	kgoodman@iso-ne.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☒	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
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☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

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Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments:
   In response to the specific question posed: ISO New England agrees that the information listed should be included in a Job Task Analysis (JTA). However, the format of the question focuses on the details of the requirement (i.e. what goes into a JTA) and presupposes the need for the requirement itself.

   We do NOT agree that a Job Task Analysis should be a NERC mandated requirement. The customized subjective nature of job tasks precludes a 'standardized' requirement. Any approach that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments:
   ISO New England agrees that Training programs must address the needs of the individuals, regardless of the experience level. Further, we agrees that Training Programs must span the entire spectrum from new hires to experienced individuals.

   R2 and R3 however, would mandate individual person by person formal assessments. And R3 would impose unprecedented annual 'needs assessments' of each incumbent operator.

   R2 and R3 go well beyond requiring Corporate Operator Training programs, and go into mandating the practices and procedures for Personalized Training programs. ISO New England does not agree that a one-size-fits-all Assessment requirement will meet the unique and varying needs of the responsible functional entities. As noted in the response to Q1, the customized subjective nature of indiviual's needs precludes a 'standardized' requirement. Any approach that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to

improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

☒ Yes

☒ No

Comments:
ISO New England supports a requirement that all responsible entities must have a System Operator Training Plan for maintaining current competencies, learning new competencies, and practicing needed competencies. The Plan should include training that covers all the experience levels for the specific respective entity (not for some undefined common need).

All responsible entities must have a plan for entry-level system operator training, IF and ONLY IF entry-level training is required. However, there is no basis to fully-develop and have-ready-for-delivery an entry-level program if no such need exists.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

☒ Yes

☐ No

Comments:
ISO New England supports ongoing Training Programs, but does not support a standard that requires a program "for each operator." Operator-specific programs may be an admirable objective, but they are not always practical.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

☐ Yes

☒ No

Comments:
A requirement that each entity verify trainer competency mandates each entity to assume an expertise that is outside the scope of those reliability entities.

ISO New England supports ongoing Training Programs that employ systematic approaches to training. Such programs, including NERC's current Continuing Education program, include a feedback component from the participants in the areas of content and instructor competency. Although participant verification of the competency of the instructors is an inherent component of such systematic approaches, a standard on verification is unnecessary.

As note in the responses to Q1 and Q2, any standard that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard. To meet the FERC directive the standard must include a definition of competence and the measures used to assess that competence.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments:
   If the question is "Do you agree that the list in R7 is useful in any Training Program?" then ISO New England agrees that the items in the list are useful.

   If the question is "Do you agree that NERC mandate each item in the R7 list in order to have a valid Training Program?" ISO New England does not agree that there is any basis for mandating those requirements. The proposed set may be a good set but it is not justified as the only set.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with “hands-on” experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:
   ISO New England does not support requirements that mandate "How to" carry out a given standard. Although ISO New England supports the use of near-real time Operating Training simulators and in fact has a fully functioning simulator, we recognize a simulator is not a necessary tool for conducting valid excercises.

8. Do you agree that there should be a record of each system operator’s training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☒ No

   Comments:
   ISO New England agrees that a training results tracking system is valid, but questions whether or not this task rises to the level of a NERC standard.

   Note:
   Question 8 refers to Requirement 8. However, Question 8 asks a question (relating to documenting operator needs) that is not part of Requirement 8 (relating to training only).

9. Do you agree that entities should evaluate their training programs every year? (R9.)

☐ Yes

☒ No

Comments:
An annual evaluation of training programs is a good practice, it is important but it is not required. As with other proposed requirements, this requirement does not provide a quantitative measure related to evaluation.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

☒ Yes

☒ No

Comments:
In response to the question, ISO New England agrees that training materials should be up-to-date.

In response to the proposed R10, the associated measures have no relationship to evaluating whether or not the materials are up-to-date. The Drafting Team must more accurately define the term "accurately reflects."

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: See response to question 19

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: See response to question 19

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: See response to question 19

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: See response to question 19

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

    ☐ No

    Comments: The proposed standard requires more public discussion before discussing field testing needs.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: The proposed standard requires more public discussion before discussing implementation plans.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:
    ISO New England recognizes and supports the need for and the value of developing system operator Training plans, and of maintaining and implementing those plans.

    ISO New England also recognizes that owing to the diverse system characteristics, varying operating systems and the multitude of operating procedures used by the subject responsible entities, that the Training Programs used to effect those Training plans are not and cannot be standardized.

    Violations Risk Factors
    ISO New England does not agree that the SDT correctly interpreted the definitions of the Violation Risk Factors; and does not agree with the factors proposed.

    Training Program Accreditation
    Rather than attempting to proscribe what must be included in every program, we suggest that the SDT consider creating a System Operator Training Accreditation Program.

    ISO New England suggests the SDT consider revising the Standard to simplifiy the standard to mandate:
    - Responsible entities have a System Operator Training Plan
    - Responsible entities use accredited Training Programs to implement those plans

    ISO New England further suggests that the details proposed in the current standard be drafted into a Technical Reference Guide that could serve as the basis for the Accreditation program.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

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Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Mark L Bennett	
Organization:	Gainesvile Regional Utilities	
Telephone:	352-393-6418	
E-mail:	bennettml@gru.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
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Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments: Yes, But I believe this is going to end up being a major compliance issue in the future if this SAR goes through as written, What is wrong with PER002-0 dated

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: refer to 1

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☐ Yes

   ☒ No

   Comments: Not necessarily, Some Systems that perform these functions that are radial feeds and BA's don't need to practice blackstart every year unless a new employee is hired.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: I believe this needs to be completely eliminated the way it is written.What is needed is th student name, the "task' completion date.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Again depending on the size of the system and how the loss of said system could affect the bulk electric system I am not sure that simulstion is needed. I agree that there are certain benefits derived from observing an individual systems configuration and flows during different contingencies.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: Either they are competent or not. If they don't they need to do it again.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☒ No

    Comments: Let the entities train as they see fit within the structure of PER-002

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: Again, depending on the size and configuration of the entities generation/transmission system depend on whether the risk factors are assigned at all.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: I believe that if a review of a training program takes place, the only thing needed is student name/ credentials/ outline of program, where they are in the program.

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: I believe that entities need a training program, and must have one for compliance. I don't believe that all the requirements and measurements are necessary to have a comptent operator. This is mostly back office work for tracking purposes. Again PER 002 should suffice.

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments: Not only does it not need to be field tested It need to be forgotten about. It is already covered.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: My opinion is this standard is not necessary at this time. What seems to be taking place is somewhat backwards. In the past all entities wer required to develop[a training plan to ensure that there was competent personnel manning Control Centers. Each entity developed their individual programs based on the tasks that they percieved as " high risk, or important". This got accomplished. Now I see a SAR dictating exactly how a training program should look and what sort of back up documentation is required. What kind of measurements and possible fines for not having a program as narrated in the SAR. The schedule for Compliance is too aggressive for some companies that don't have " dedicated, qualified trainers.

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Matthew Santos	
Organization:	San Diego Gas & Electric	
Telephone:	619-725-8681	
E-mail:	msantos@semprautilities.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☒ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs, ISOs, Regional Reliability Councils
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: The JTA should be based on each company's needs, the time, money and man hours to do a JTA is considerable. if you were to use a vender to do the JTA cost will increase. So after you have the JTA done, now you build the training program around it. This is time, money and man hours. Now deliver the training to the troops, Money, time and man hours. Do you have or can you get the personnel to deliver the training? Most companies do not or cannot, so we go to the outside and have a vender do it for us. From what I hear most companies are in the same boat doing more with less and not able to find qualified folks to get all the training done that is now required by the standards. This standard as it stands now would be very hard to comply with, you say phase it in over 2 years, more time is needed, 4 to 5 years would be more realistic for the industry to accomplish this.

   I disagree with R1.1 clarify conditions?, the task could be performed under normal/emergency conditions. Are you asking for that much detail on each task? It should be performing the task successfully

   R1.5 every utility is different, the operator may perform the task once or 50 times a shift what does it matter as long as they do it correctly?

   R1.7 - What is the criteria for successful performance of a task? It should be what I set it at. anything missed will be addressed.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☒ No

   Comments: We interview experianced outside Operators in Transmission and Generation to come into the Transmission (GCC) department. We do verbal/scenario type of questions and look at their resume, if they qualify in this regard, then we proceed with training them in all aspects of Transmission. It does not matter what they say they know, we cover it all (They have to learn our system & procedures) and then test them. This happens until they are qualified to assume a shift by themselves.

   I disagree with R2 and R3 this is too much and going to far. Assessments on individual's needs can be captured in their exam results thru out normal training (Refresher/Continual) as it is delivered. And follow up would be done if needed.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☒ No

   Comments: Each entity should have a documented training program for refresher and continuing training. Each entity should have a training plan for outside operators as well as inside operators coming from Distribution to Transmission. But it all depends on how the entity is set up and what functions they perform. It should not be mandatory to have a entry level or apprentice type of trainning program if the entity does not need it.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments: But due to manpower in operator ranks and in training sections it is very hard to comply with such a schedule. First you will spend a lot of time putting it together and then a lot of time changing it due to shift/personnel issues.

   A basic plan (Based on your system) will work for all system operators. Make a list of all the training that is needed for Refresher/Continual (Continual will change due to additions of new equipment or operating practices) training that needs to be done for all the operators trying to make it an indiviual plan is not worth the effort. If you get some tracking software you can run reports on who needs or has not done what training.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☒ No

   Comments: Personnel who develop and/or deliver the training should be experianced in those areas of their expertise, if not then bring in the SME's (Subject matter Experts) to round it out. If the students are learning (Exam Results), knowledge transfer is being done.

   Other than that who ever is the trainer (Mostly those that were Operators) should have a record of being competent in their previous position(s). Attending Train the Trainer courses is desireable but not mandatory.

   What do you mean when you say Verify? Just looking at their work history or what? How would we measure this? By surveys?

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: Is this going to be a required form from NERC stating as you have it in R7? (The JTA is driving the training program, everything has been identified) Could you explain why this would be needed for each activity/task and how it would help me?

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: Generic works for the concepts, system specific does the same but also gives the real flavor. This should not be made to be mandatory, table top drills do work and provide the concepts.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☒ No

   Comments: We always want to track an Operator's progress. Take Operators off shift and test them in reliability related tasks to see if there performance meets the criteria. If the training plan is based on the JTA this is already being done in initial training, refresher training. This is more of a question not R8. The tracking of a Operator training should include how well they did on exams, how frequently this training has been repeated, any follow up done and what other training he is due for, etc.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☒ No

   Comments: We evaluate our training before we deliver it each time to see if it applies, there are so many changes on the system and in operating procedures we make modifications to the training. To say to do it every year is not practical (You are to late). This part of the Standard should just say "Evaluate your training program as needed". Doing it this way eliminates your suggested annual evaluation of the entire training program. I think that R9.1, R9.2 & R9.3 (Post feed back) is good for anything you missed prior to delivering the training and make it better for next delivery.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☒ No

    Comments: Okay you have done a JTA and built your training program and made adjustments to the JTA (Kept it up to date) you will be training your folks in the current operating environment. If not, go and sit out on the floor in real time and observe to see if the training is up to date with what the Operators are doing. Does this requirement really need to be stated?

    Define "accurately reflects"

    Question does not reflect standard as it is stated

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: I do not see how this applies, need more Info on how you came up with this Violation Risk Factor?

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: What if a company did not do a JTA? (M1). M2 & M3 are asking for to much, we can show you results of exams. I am not sure of what you mean mismatches on Actual performance and criteria for successful performance? Is this all done in training or real time?

    M5 - we should only have to show work history and training records of the trainer and maybe the pass/fail rate of those he trained. That might be hard to do if those he trained moved onto other jobs or companies.

    M6 - Only if that company brings folks in like that. Entry level is lika a apprenticeship program to me. Clarify if my interpation is wrong.

    M9 - is telling me that I have to have this documentation in a certain form style as in R7. this seems to be over kill. It should be enough to show that training is being done successfully on what topics and dates it has been delivered.

    M10 - See question 1 and clarify.

    M11 - See Question 9

    M12 - See question 10 this would be very burdensome to do. The training materials are adjusted before and after delivery until they are going to be delivered again which maybe months to years. This is about taking time to update a course which may not be delivered until months to year or so and changes will have taken place which will cause more time to be used to update the material. In a perfect world this would be very desirable but in the real world it is not going to happen. Manpower, time and system priorites will override this function.

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

Comments: When you notify an entity that they will be audited will you also at that time tell them what they will be audited on or will it be a full blown compliance audit?

If someone notifys you that we are in noncompliance did you get proof from that entity before proceeding with investigation?

14. Please identify any Regional Differences that you feel should be included in this standard.

☒ No known Regional Differences

Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☐ Yes

☒ No

Comments: I believe more time 4 to 5 years is needed for all entities to get it done right. So a phasing in period would be the best approach. But more dialog is needed, we do not need to rush into this half cocked.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☐ Yes

☐ No

Comments: To soon to proceed, the standard needs more ironing out.l

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☐ No

    Comments: It needs to be extended, unless you are saying the standard goes into effect and then in 2 years later we start with compliance?

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: A lot of these requirements need adjustment so that they are not burdensome. You can come up with all the requirements you think fit and will work but the bottom line is can it physicallly be done in the short amount of time you have allotted not to mention money but mostly personnel to carry it out. There are a lot of trainers that are overworked, overloaded and burning out and it is very hard to find qualified folks to be trainers, the industry is in short supply. The only viable option is to have a vender do it, this also takes time. We are 2 years in the running in building our training program with a vender. Why is it taking so long, manangement has to buy into it, chossing a vender, working with the vender to get what you want, vender time to complete based on their other clients, completeing JTA for all positions, production, add your companies materials (Procedures, referances, etc) revise, review, deliver, revise. All this takes time not to mention that existing training is still going on with everything else. Real time issues take presendance over anything else. We still in the process with the vender to complete our training program.

    These are my thoughts raw, uncut and last minute.

    Thanks, Matthew Santos.

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Mike Clime	
Organization:	Ameren	
Telephone:	314-554-3778	
E-mail:	mclime@ameren.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☒ **SERC**	☒	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments:

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: Some of the tasks that have a high cricicality and that are infrequently perfromed such as System Restoration and Loss of Control Center Functionality are already addressed in the EOP Standard. If you are going to address those things in the Training Standard then take them out of the EOP one.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

   Comments: It is hard enough just trying to make sure that every Operator gets in his 32 hours of EOP, System Restoration Training and Backup Facility training, as well as making sure that they are getting the proper allotment of CE hours for re-newing their certificate. Now you are going to expect us to also create an individual training plan for each Operator to also track and correct their deficiencies on a yearly basis. Who is going to do all this work?

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

☐ No

Comments: Who are the entities mentioned that are going to certify that each person developing and doing the training is capable? Is there going to be a certification program to do this?

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The JTA and Needs Assesment should be used to develop the Training Activity. Other than the Title, Objectives, prerequisites, and a method for assessing the accomplishment of the objectives, the rest can be eliminated.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: I think table top paper type drills are pretty much a waste of time. However requiring everyone to have a company specific simulator is unrealistic. It pretty much takes one full time person to maintain a simulator, updating databases and making new scenarios and testing them. Also company specific simulators are expensive. I think that some very good concepts can be taught on a generic simulator, such as restoration concepts, voltage collapse, Ferantti rise, operating islands, synchronizing, etc;.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: In the heirarchy of training, tasks are at the very bottom. It would be almost impossible to try and track each task for each Operator.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☒ No

   Comments: Training programs should be evaluated and updated as things change. A complete evalution could be done every three years.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☒ No

Comments: Why would any Trainer not do this anyway. Why do we need a Standard for it?

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: Don't even need R10.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: M5 - What determines who is qualified? And what is the documentation that says that they are?

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: The plan is to aggressive especially if some of the training is not thoroughly developed at the current time. A lot of companies will be required to hire another Trainer just to do development work and record keeping.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: Should be longer.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

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Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Michael Scott	
Organization:	Arizona Public Service Company	
Telephone:	602-250-1384	
E-mail:	michael.scott@aps.com	

NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☒ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: During Job Analysis a task list for a position is created, and that determination of whether these tasks are selected for training is also created, typically by a difficulty, importance, and frequency review. This is alluded to in R1.4 and R1.5. This task list should be auditable.

   During Task Analysis the selected tasks mentioned above are analyzed to identify the conditions, behaviors, and standards to which a task must be performed. The knowledge, skills, and abilities of the selected tasks must be identified. These points are mentioned in R1.1, R1.2, R1.6, and R1.7. The analysis of these selected tasks should be auditable.

   To measure an individual's mastery of a task, evaluation in a team setting is problematic, if not impossible. We therefore disagree with R1.3.

   To make the R1 section more usable, we respectfully suggest the following wording:

   R1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall conduct a System Operator job task analysis (JTA). The analysis must be updated when there is substantive change to the operator's job (e.g. new or revised task or tool).

   The JTA results shall include:

   R1.1 A task list containing company-specific reliability-related tasks for each System Operator position, including analysis data used to determine whether the task is selected for training (e.g. infrequent, critical, difficult, etc.)

   R1.2 Analysis of each task selected for training, including conditions, actions, and standards for performance, and the knowledge, skills, and abilities required by the trainee.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: We agree that the new-hire must have an assessment of their training needs, leading to an individualized training plan.

We strongly disagree with the recommendation to conduct an ANNUAL assessment of incumbent operator training needs. The Systematic Approach to Training, if properly applied, will lead to a initial training program design that develops qualified personnel for the job position. An entity would doubtless have to conduct a one-time assessment of incumbent operators' training needs, against the newly designed program, filling any gaps with the needed training. Once the incumbents have received the initial training for the job position they have held, there is no further need for annual training needs assessments. New tasks, industry events, enhanced skills training, performance improvement, etc. would be provided, via the Systematic Approach to Training, as continuing education.

For the sake of simplicity, we would suggest the following wording for R2 and R3:

R2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall assess the training needs of new System Operators, creating individualized training plans for them as needed. The plan will include the topics and the schedule for the training.

R3. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall conduct a one-time assessment of the training needs of incumbent System Operators, creating individualized training plans for them as needed. The plan will include the topics and the schedule for the training.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: We agree with the idea, but again the verbiage used is needlessly wordy. Suggestion:

   R4. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have an annual training plan that includes:

   R4.1 Training for new System Operators, as identified in B.R2.

   R4.2 Training for incumbent System Operators, as identified in B.R3.

   R4.3 Continuing education for incumbent System Operators, that includes training:
   - to correct identified performance gaps
   - based on analysis decisions
   - on new or revised tasks

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

☒ Yes

☐ No

Comments: See item 3 above.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

☒ Yes

☐ No

Comments: The answer to the question above is Yes. But we disagree with what the standard says. According to the proposed standard, if you develop training you must know the material and know the training process, but if you implement training (aka: teach) you must only know the training process. We disagree. We suggest the following:

R5. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify that persons developing or delivering training have the following qualifications:

R5.1 Operating knowledge in the subject matter covered by the training activity

R5.2 Competency in developing training using a systematic approach

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This R.7 section appears to be focused on the "I" of the ADDIE process, so I suggest combining sections R.6 and R.7 for simplicity. Rather than take each of the 10 items individually, here's a suggestion:

   R6. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall conduct training that includes:

   R6.1 Training for new System Operators, as identified in B.R2.

   R6.2 Training for incumbent System Operators, as identified in B.R3.

   R6.3 Continuing education for incumbent System Operators, that includes training:
   - to correct identified performance gaps
   - based on analysis decisions
   - on new or revised tasks

   R6.4 Drills and/or simulations on tasks that have high reliability-related criticality and low frequency of occurrence shall be conducted. This training shall include:

   R6.4.1 At least 32 hours of emergency operations or system restoration training, simulating the system conditions, operating procedures, and communication processes.

   R6.4.2 At least one exercise each year involving other entities, including all real-time operating positions likely to be involved in the actual event.

   R6.5 Retention of course completion documentation, including the course title, provider, attendee name, completion date, and grade.

   R6.5.1 If the training is NERC Approved, a copy of the course certificate will be retained in the operator's training file (If the training has been approved by NERC, the learning objectives, course materials, evaluations, etc. are already archived.).

   R6.5.2 If the training provided is not NERC Approved, a copy of the course materials shall be retained, including learning objectives, lesson plan if applicable, and evaluation.

   R6.5.3 Training records shall be retained for three years.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Owning and maintaining a "simulator" may financially unfeasible for some entities. All entities can participate in "simulations", though, including tabletop drills, etc.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

☐ Yes

☒ No

Comments: As mentioned earlier on question 2, a one-time assessment of an incumbent operator's training needs, in relation to a newly designed training program is appropriate. After the operator meets these needs, the SAT process includes feedback measures that identify opportunities for performance improvement.

Continuously evaluating each and every qualified operator against a catalog of tasks in order to repeatedly design a unique, customized annual training plan adds an additional layer of administrative burden that would be cumbersome, expensive, and ineffective.

We recommend dropping R8 in its entirety.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

☐ Yes

☒ No

Comments: An eighteen-month self-assessment (strategically located between the triennial audits) would be effective and cost-efficient.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

☒ Yes

☐ No

Comments: Latitude for making approved pen-and-ink revisions to curriculum should be allowed, enabling "the show to go on", without a slow word processing and approval cycle. Let's stay nimble.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

☐ Yes

☒ No

Comments: I don't understand how the value of these Factors is calculated, so I can't agree.

12. Do you agree with the Measures in the proposed standard?

☐ Yes

☒ No

Comments: Based on the simplifications recommended in my review of this standard, I suggest the following Measures:

M1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, the results of its latest JTA as specified in R1.

M2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, the assessment of new System Operator training needs and any resulting individualized training plans as specified in R2.

M3. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, the assessment of incumbent System Operator training needs and any resulting individualized training plans as specified in R3.

M4. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, the annual training plan for System Operators as specified in R4.

M5. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, documentation of personnel qualifications who developed or delivered System Operator training as specified in R5.

M6. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, training records that document training activities as specified in R6.

M7. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, the results of its latest program evaluation as specified in R7.

13. Do you agree with Compliance Monitoring section of the standard?

☐ Yes

☒ No

Comments: The annual self-certification is too frequent. Conducting a thorough self-assessment 18 months following the triennial audit would be effective. This would provide a "halfway point" snapshot of program progress between the audits.

14. Please identify any Regional Differences that you feel should be included in this standard.

☒ No known Regional Differences

Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☒ Yes

☐ No

Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☒ Yes

    ☐ No

    Comments:

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

ALL DATA ON THIS FORM WILL BE TRANSFERRED AUTOMATICALLY TO A DATABASE:

DO:
Do enter text only, with no formatting or styles added.
Do use punctuation and capitalization as needed (except quotations).
Do use more than one form if responses do not fit in the spaces provided.
Do submit any formatted text or markups in a separate WORD file.

DO NOT:
Do not insert tabs or paragraph returns in any data field.
Do not use numbering or bullets in any data field.
Do not use quotation marks in any data field.
Do not submit a response in an unprotected copy of this form.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Michael Gammon	
Organization:	Kansas City Power & Light	
Telephone:	816-654-1242	
E-mail:	mike.gammon@kcpl.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

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Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training Standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities and Transmission Operators are provided with training to promote the reliability and adequacy of the North American Interconnections and their bulk electrical systems.

Just prior to the 2003 blackout in the northeastern U.S and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December, 2004 the SAR for a system operations training program was first posted for industry comment. The SAR Drafting Team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk electric system operations.

The System Operator Training Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions. Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1 through R1.7)?

   ☒ Yes

   ☐ No

   Comments:

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: It is important to determine the training requirements for training new Operators, however, on-going training for incumbent Operators should be in the form of training plans that accomplish those things that are important to the job specific needs of a company and to maintain NERC operator certifications.

   R3 is for unacceptable levels of performance for incumbent Operators to be assessed annually. For those reliability tasks that are done routinely, any performance problems should be addressed as they are known and not wait for an annual assessment. For those reliability tasks that are not done frequently (peak load operating conditions, emergency plans, etc.), those should be part of an annual training program. I would recommend the following language modifications to the proposed standard:

   R3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct a training needs assessment of incumbent System Operator to identify reliability-related training activities that are not routine ~~mismatches (~~for the tasks identified in Requirement 1, periodic training required for each non-routine reliability-related task, and a training plan to support maintaining NERC operator certifications and to maintain Operator skill levels~~ and the criteria for successful performance of the task identified in Requirement 1.7) between actual performance and the criteria for successful performance for each position performing reliability-related tasks identified in R1 (including any contract System Operator or System Operator performing tasks identified in R1 under delegation agreements)~~ at least once every three years or as additional reliability tasks are added or modified.

   R4 seems to capture the essence of what I am referring to here, except for a training plan to support maintaining NERC operator certification.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to

improve performance and annual refresher training to practice tasks that have high criticality and are infrequently performed?

☐ Yes

☒ No

Comments: R4.2 does not fit with this standard. Any lapses in performance should be dealt with immediately. Each company should have policies in place to allow a company to take any actions necessary to remedy operator performance issues.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4)

☒ Yes

☐ No

Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5)

☒ Yes

☐ No

Comments: What does "systematic approach" mean? It seems the proposed standard has dictated a good way of determining the training needs by a job task analysis, training needs assessments and a determination of acceptable performance criteria. If someone follows this standard is that an acceptable "systematic approach"?

6. Do you agree with the list of training activity components provided in R7? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

7. Do you think that every Reliability Coordinator, Balancing Authority and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

☐ Yes

☒ No

Comments: A simulated activity does not have to be dependent on a training simulator. There are table-top exercises and drills sufficient to meet training needs. In fact, many parts of an emergency exercise do not require the use of a simulator (e.g. field personnel at various locations to perform specific field tasks).

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8)

   ☒ Yes

   ☐ No

   Comments: I think the reference in R8.2 should be for training identified under R4. R7 seems to be the information needed for tracking and R8 is the requirement for tracking.

9. Do you agree that entities should evaluate their training programs every year? (R9)

   ☒ Yes

   ☐ No

   Comments: Annually seems a bit over the top, however, once a program is implemented, it should not take very much to evaluate a training program each year including the sources for feedback as they are available.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments:

	Standard	**Comments**
R1: JTA	High	Medium
R2: New hire requirements	Medium	High
R3: Incumbent training needs	High	High
R4: Training plans	Medium	Medium
R5: Trainer competency	High	Medium
R6: Training implementation	High	High
R7: Training documentation	Low	Low
R8: Training tracking	Medium	Low
R9: Training program evaluation	Medium	Low
R10: Training program maintenance	Medium	Medium

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

Comments: Since commented on the R3 requirement, the proposed M3 no longer fits. I would propose the following language changes:

M3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, the results of its latest training needs analysis that identifies each incumbent System Operator's training plan~~mismatches between actual performance and the criteria for successful performance~~ as specified in R3.

13. Do you agree with Compliance Monitoring section of the standard?

☐ Yes

☒ No

Comments: The performance reset period seems a bit harsh. Are there any standards that have a flexible reset period?

14. Please identify any Regional Differences that you feel should be included in this standard.

☒ No known Regional Differences

Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☒ Yes

☐ No

Comments: I agree with the plan components, however, I think the implementation time frame is bit aggressive for most entities.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement please identify the conflict here.

☒ No known conflicts

Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

☐ Yes

☒ No

Comments: I think two years is too aggressive for companies that do not have and cannot afford to have a dedicated training staff and do not need a dedicated training staff. Although, the standard espouses appropriate training elements, I think companies that do not have a dedicated staff will need three years to meet this standard.

19. Please provide any other comments you have on this standard that you haven't already provided above.

Comments: Do not agree with all the requirements in R6 as stated below:

R6. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall implement its System Operator training program by providing training to all of its System Operator (including any contract System Operator or System Operator performing tasks identified in R1 under delegation agreements) as follows: [Risk Factor: High]

R6.1. Entry-level training to provide System Operator with the knowledge and skill identified in R2 to meet the associated criteria for successful performance identified in R1.7.

R6.2. Continuing training to reinforce knowledge and skills of incumbent System Operators as identified in the JTA (Requirement 1) that meet requirements R4.2 to R4.4~~were not covered in Requirement 4.2~~. (Everything the incumbent Operator needs is identified by R3 and specified in R4. There should not be anything that is not covered by this standard.)

R6.3. Refresher training to eliminate performance gaps identified by the training needs assessments in by the JTA (Requirement 1) and ~~Requirement 2, and~~ Requirement 4.2~~3~~.

R6.4. Continuing training to acquire the knowledge and skills necessary for new or modified tasks and tools identified in R1 and R2~~ and R3~~.

R6.5. Annual refresher training for incumbent System Operator that includes the use of drills and simulations on tasks that have high reliability-related criticality (as identified in R1.4) and low frequency of occurrence (as identified in R1.5) to meet the associated criteria for successful performance identified in R1.7. This refresher training shall include:

~~**R6.5.1.** At least 32 hours of emergency operations or system restoration training, simulating the system conditions, operating procedures and communication processes.~~ (This requirement is already in Reliability Standard PER-002, R4 and is not necessary to be repeated in this proposed standard.)

R6.5.2. If sub regional, regional or interconnection-wide system exercises are available, at~~At~~ least one exercise each year shall involve other entities on a sub-regional, regional or

interconnection-wide basis, involving the appropriate~~all~~ real-time operating positions likely to be involved in the actual event, with each person performing their assigned duties. (It is inappropriate to require an organization to do something that is entirely out of their control. What if no there are no sub regional or regional activities available? It should be left up to the companies involved to determine the extent of an exercise.)

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Power Operations Training Center	
Organization:	Southwestern Power Administration	
Telephone:	(417) 891-2626	
E-mail:	mike.wech@swpa.gov	
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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: The standard should require a Job Task Analysis, but, the information collected and specified in R1.1-R1.7 should be separate from the standard as a "Guide" such as an attachment or appendix to the standard.
   R1.1 should specify the condition categories (e.g., Emergency, Normal, Contingency, etc.
   R1.2. should not require: actions to be taken in performing the task unless the action is another task or sub-task. Actions may require a matrix or flow chart based on an individuals understanding of basic concepts. This could be very challenging in some cases especially where there are a number of different actions/responses that are practical, and correct, that would yeald simular results. This is why we have documented operating procedures and plans (e.g., EOP and Black Start plans). R1.2 should simply read: Identification of references and tools, including actions if appropriate, used in performing the task.
   R1.4 is vague as it needs to specify the different categories of: criticality (e.g., Low, Med, High).
   R1.6 should have the word experience removed or replaced with a different word or phrase within the requirement. Is experience intended to mean operator/trainee assessment by the trainer rather than experience over a time period of doing the task? If an individual has the knowledge and skill to perform the task, experience over time may not be relevent, such as for new tasks involving new tools. Experience comes with performing the tasks. Experience in doing a task may not be practical or possible (except as a lab type demonstration exercise during a training activity) until the tool/task has been proven and utilized in real-time operation. R1.6 should read: The knowledge and skill needed to perform the task; or, The criteria for demonstration of the knowledge and skill to perform the task.
   R1.7 - Criteria for successful performance, is difficult to measure/document for many tasks. R.7 seems redundant to R1.6, which already covers this if a demonstration of knowledge and skills has been specified.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: The Initial training program for new entry level employees generally trains by precluding the training needed for new entry level employees. Training assessment to perform the job is done in preparing the initial training program. Training needs analysis for entry-level employees is actually an analysis to update the Initial Training Program before entry-level employees arrive. In other words, the initial training plan reflects entry level operator needs analysis, whereas qualified/certified operator needs

analysis would involve separate documented results. I answer yes with some reservation as to how to keep track of all the individual assessments once they are made, and the individual progress within those assessments.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: Yes, with some modification/clarification. Don't change the industry terminology and meaning of continuing training; Refresher training and new knowledge training is all categories of Continuing Training. We have a continuing education program and certification program which has already established terminology in using Continuing Education and Continuing Training.
   R4.2-R4.3 Where do you draw the line on training critical tasks affecting reliability? How do you gage criticality? You can't re-train all reliability tasks every year. Training is done for the imcumbant group as a result of training needs analysis for the group and prioritized to give the greatest needs presidence. When performance is obviously low for one or two related to a task or subject, others are not likely up to par either. Therefore, giving continuing/refresher training to the whole group assures all operators get refreshed. Whereas, refresher training on critical tasks performed correctly by the group, which does not show a deficiency, would not need training. If an operator is not performing a task correctly, immediate training by a mentor could be suffice without scheduling a formal structured training session documented in a training program.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☒ No

   Comments: Yes and No. Not necessarily each system operator individually by name, but each system operator by job title and/or as entry level/new operators verses qualified/certified operators. The Initial training program for new entry level employees generally trains by precluding the training needed for these employees. Training assessment to perform the job should be done in preparing the initial training program for entry level employees and would apply to all entry level operators.
   New/entry level employees should not be performing reliability-related tasks (R4.1) unsupervised as they would not be qualified or certified. The initial training plan should be a part of the training plan but may best be referenced as an attachment or appendix to the annual training plan as it is a separate stand alone plan from that of the continuingplan. Initial training plan timeframes for entry-level employees with little to no Transmission Operating experience gennerally may extend longer than a year such as a 2-5 year plan.
   R 4.2 and R4.3 should be combined. If the refresher training of R4.3 is done, it will take care of gap refresher training of R4.2, if it exists. Performance gaps is a somewhat ambiguous terminology open to interpretation.
   The annual training is a part of the training plan that should give focus on identifying and scheduling continuing and refresher training for qualified/certified operators. The

plan could require new entry level operators to receive the same annual training given to qualified/certified operators in addition to their initial training so as to re-inforce their initial training program.
R6 only needs to say "shall implement its System Operator training program as identified and specified in R4". It doesn't need the redundancy of R6.1 - R6.4
R6.5 should then be moved to be included as R4.5 as a type of training idendified and targeted by the annual training plan.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: Yes, but competency is not very measurable. Being competent reflects such terms as being qualified, capable, fit, and adequate. Maybe the word qualified would be better than the word competent. Qualifications are somewhat measurable and would be less subjective to the auditing process. Such qualifications to train are reflected by experience, time, and performance in the field (e.g., experience in Operations).

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This is a great list of activity components for the perfect program, but is not necessary for all activities and topics of training. These should be a part of a "Guide" provided as an attachment to the standard not a part of the standard as measured requirements.
   When some needs are discovered due to poor performance or lack of knowledge, the training may be done informally on the job by another qualified operator via assignment by a supervisor. Having this documentation for every training activity is not practical, but it is a good guide to strive for in formal training.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: A Simulator that reflects the operator's actual system is the best and is highly preferred by operators who have experienced both generic and specific simulators. Use of generic simulators has limited benefits. They are OK for show & tell of operating concepts or if it can't be done with a company-specific simulator for some reason. Use of a generic simulator is better than no simulator only to a point.
   This is a best practice item. The standard should require simulation excersises, but not require entities to use a simulator. Table top drills and excersises are sometimes better than actual simulators. Not every entity should be required to have a simulator. For small entities, purchase of a simulator or purchase of generic simulator training may not be economically feasable.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: Not a record specific to tasks needing performance improvement, but rather documentation that each operator has had, and completed, the training required to perform/master the required tasks.
   Task performance improvement record documentation could require all tasks to be demonstrated under supervision, on some routine schedule, to verify performance. Documentation for each task as specified by R8 would require extensive data entry into an Learning Management System (LMS) in addition to the paper trail needed to document before entering data into an LMS. Another factor is getting the LMS to accept/accommodate such documentation for view by administrators and operators. Perfect record keeping and documentation can only be achieved by giving time for each

entity to develop their LMS to accommodate the guidelines, if they even have an LMS. The NERC LMS is proof that development of an LMS, even if just for the high level tracking takes extensive time and money, let alone an LMS that handles the detail of JTA and JTA actions, course criteria, etc.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments: The only item in R9 causes concern is that of R9.4.
   Because of the vast differences between audit teams, (background, experience, regional differences) I believe audit results cannot be used as a requirement for evaluating a specific training program. Can they be a guide? Yes, but not a requirement.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments: Yes, but as a guide, not as a standard requirement. Even NERC doesn't do this. NERC has a history of using old reference and training documents that have not been updated for years. NERC certification exams use 6 month to year old training references. Sometimes using old material with disclaimers is required to get the training done.
    It is a challenge to keep procedures and protocols up-to-date, let alone every detail within a training document before use. A review date on training material doesn't always mean it is totally up to date.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

☐ Yes

☒ No

Comments: R1 requires a JTA rated High Risk. Whether I do or don't do a JTA isn't what puts the reliability at high risk. It is certain tasks not performed or tasks performed improperly that reflect high risk. Not performing a JTA is Lower Risk.
R2 is rated Medium. Newly hired and entry level operators would not be operating the system unsupervised until they are qualified. Therefore R2 does not directly effect the reliability of the system. R2 should be rated Lower Risk.
R3 is rated High, which is proper because it relates to successful or unsuccessful performance of reliability tasks which directly effects reliability of the system.
R4 is rated Medium Risk in having an annual training plan, which is within reason.
R5 is rated High Risk, which is within reason related to qualified developers/trainers.
R6 is rated High Risk. This should probably be Medium Risk as R6.5.2 is rated Medium.
R7 is appropriately rated Lower Risk, as most of this requirement is busy work documentation.
R8 is rated Medium Risk. Tracking of training or not tracking training with records does not directly affect reliability. R8 should be rated Lower Risk.
R9 is rated Medium Risk. This should probably be Lower Risk, as from experience, evaluations done on an as needed bases has worked fine with no direct affect on reliability
R10 is appropriately reated Medium Risk considering it is important, whether related to training or operating procedures/protocol, that information gets updated for operation of the real-time system.

12. Do you agree with the Measures in the proposed standard?

☐ Yes

☒ No

Comments: As I don't agree with all the parts of the standard, I can't agree with the measures. Also as a statement to be considered, a detailed standard with these type of requirements and measurements would have less impact on a small entity with only one RTO and a few System Operators as compared to a large entity.
Many different individual training plans with many different training needs analysis and further customizing plans to satisfy each individual is much more complex, including record keeping, than that for an entity with only 5 operators in one RTO footprint.
M1 - OK if clarifications are made as needed for R1.1 - R1.7
M2 should require an initial training program plan that reflects the Training Needs Analysis (TNA) for entry level/new operators, not necessarily for each individual operator but rather for all entry level operators.
M3 should require results of TNA per job title of incumbent operators, not necessarily for each individual operator.
M4 - Training Plan - OK
M5 - Training Personnel Qualifications - OK
M6 - Entry Level Operator Training - OK
M7 - Incumbent Operator refresher training - OK, but should be stated as continuing training as refresher training is a category of continuing training. Use the industry standard terminology

M8 - Incumbent Operator gap refresher training - Not needed if M7 records are provided. To accomplish M8, you must also have identified a gap. Gaps may not exist. Identifying gaps that might exist should be part of a guide, not the standard.
M9 - Documentation of Training material detail for all levels - This measure would not be needed if R7 becomes a guide rather than a requirement of the standard.
M10 - Remove - M10, If M10 is necessary, it should only require record of training to perform tasks.
M11 - Training program annual evaluation - OK
M12 - Training program annual update if required - OK

13. Do you agree with Compliance Monitoring section of the standard?

☒ Yes

☐ No

Comments: Yes, as long as requirement documentation that is needed to satisfy the audit or self-certification is specified before-hand.

14. Please identify any Regional Differences that you feel should be included in this standard.

☒ No known Regional Differences

Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☐ Yes

☒ No

Comments: Not if this plan were implemented, as is, without modification.
Re-vamping all training materials to meet this standard including the list of components in R7 along with the JTA elements of R1 would require budgeting, staff increase, and time. Time to do it, even after attaining the staff, would be a big consideration. Budgeting and staff increase is a huge undertaking within itself. This training standard only allows a 2 year time-frame to allow entities to achieve staffing and attain compliance to the standard. A year could be gone before budgets and staffing is achieved. Revamping all existing training to meet this standard while implementing and maintaining the required CE and Certification program requirements will be a huge and time consuming undertaking, to say the least. I believe that in light of these concerns, a 3 year time frame for implementation is more practical (e.g., R1, R2, R3 up to 18 months; R4, R5, R6, & R7 up to 30 months; R8, R9, R10 up to 36 months).
Also in reference to retirement of PER 004, R3 & R4 are dependant upon a JTA. The JTA may or may not address these. Therefore, R3 & R4 of PER 004 should not be retired.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☒ Yes

☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: This appears to be a repeat of question 15 above. We would like to see this changed to phase-in time period of 3 years.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: This training standard should be practical in its requirements and measurements. It does't have to address all the detail of the training activities and guidelines, as part of the requirements, to be effective.
    This standard calls for perfection in-line and beyond that of some college or university programs.
    Few entities will have the resourses, staff and time to meet these demands, so therfore we may be setting up many entities to fail.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name: SEE NEXT PAGE		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Operations Training Subcommittee - WECC

Lead Contact: **Hank LuBean**

Contact Organization: **Western Electricity Coordinating Council**

Contact Segment: **2 and/or the new Segment 10**

Contact Telephone: **509-884-7191**

Contact E-mail: **hlubean@dcpud.org**

Additional Member Name	Additional Member Organization	Region*	Segment*
Rod Byrnell	BCTC	WECC	1
Richard Krajewski	PNM	WECC	1
John Phipps	CISO	WECC	2
Brian Reich	IPC	WECC	1
Brian Tuck	BPAT	WECC	1
Lauri Jones	PG&E	WECC	1
Tom Smith	TSGT	WECC	1
George Noller	SCE	WECC	1
Marilyn Franz	SPR	WECC	1
Marcel Martin	AESO	WECC	2
Robert Williams	PAC	WECC	1
Jon Crook	SMUD	WECC	1
Scott Kinney	AVA	WECC	1
Richard Schwarz	PNSC	WECC	2
Richard Brock	PSC	WECC	1

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: OTS agrees a job task analysis should be performed to identify the tasks assigned to each operating desk. OTS does not believe the "analysis" needs to be updated when there is a new or revised task or tool. We believe R1 should say the task list must be updated. The level of detail for the analysis should be sufficient to identify the task and guide what type of training may be appropriate. Too much detail does not make for a better analysis and this requirement places work on operating entities that is not beneficial. The list in R1.1 through R1.7 is more detailed than is warranted. OTS lists the R1.1 through R1.7 and offers comments on each item:

   R1.1 "The conditions under which the task is performed." OTS does not support identification of the conditions when a task is performed. Most tasks need to be performed under many conditions. If a task is a critical emergency task the condition is a fundamental part of identifying the task and does not need a separate reference.

   R1.2 "The actions to be taken in performing the task, including identification of references and tools used in performing the task." OTS supports including this in the Standard.

   R1.3 "Identification of whether the task is performed alone or as part of a team." OTS does not support including this in the Standard. Many tasks need to be performed either "alone or as part of a team" depending on normal operating or emergency conditions at the time. Whether a task is generally performed individually or as a team is a fundamental part of identifying the task and does need a separate reference in the standard.

   R1.4 "The criticality of the task with respect to reliability." OTS does not support including this in the Standard. Singling out tasks as being "critical" to reliability implies other reliability related tasks are not critical to reliability. All tasks identified as being reliability related should be considered important or "critical." If a task is inherently critical it will be known as a fundamental part of identifying the task and does need a separate reference. Criticality can be a relataive issue and cannot be measured accurately.

   R1.5 "The frequency of performing the task." OTS supports including this in the Standard. It can be helpful in developing the annual training plan and considering the frequency of tasks in the refresher or continuing training program.

   R1.6. "The knowledge, skill, and experience needed to perform the task." OTS supports including this in the Standard.

   R1.7 "The criteria for successful performance of the task." OTS does not support including this in the Standard. Separately identifying the criteria for "successful performance" of each individual task is not necessary and provides limited benefits.

OTS fully supports a learning assessment at the end of each learning activity to determine if the learning objectives were met for the activity. Successful "performance criteria" is usually executing the skills and knowledge necessary to do the task correctly and in the right timeframe resulting in the desired outcome, essentially doing the task without mistakes. Many topics in operator training do not support the concept that an operator can demonstrate "performance" of the task at the end of the learning activity. Many tasks cannot be performed until an operating condition on the system calls for the task to be performed, which may be days or weeks after the training took place. A "performance criteria" can be a general operating philosophy such as safe and error free operating of the system, but it will be a burden and does not provide and benefit to add performance critiera to "every task" performed.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☒ No

   Comments: These should simply be referred to as a training assesment for "initial" training of a System Operator and a training assessment for "continuing" training. It is not necessary to say they are "entry level or newly hired experienced". A proper gap analysis measuring each System Operator against all the tasks required to be performed will determine how much training is required. However, R3 requires a training needs assessment of each operator to identify performance gaps (we prefer competency gaps or a gap analysis) at least once "every year." This indicates every operator must be assessed against the entire task list at least once a year. OTS agrees this type of assessment of incumbant operators should occur with some periodicity but every year is unnecessary and will lead to unbeneficial concerns of the operators. OTS suggests a two or three year cycle rather than every year.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments: It is not clear what "anticipated duration of the topic" is meant to define in the annual training plan. It is expected that "anticipated duration" for a topic to be trained on would be different for entry level System Operator vs. refresher training for incumbant System Operators. OTS believes that "anticipated duration" for training

topics should not be a requirement as it is different in each context listed in subsections under R4.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments: The key phrase in this question is "entitites" verify the competence of those that develop and deliver training. OTS does not support outside entities such as NERC or the Regional Reliability Organizations determining if personnel are competent.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: R7 lists documentation required for each "learning activity" used to support its reliability related training. The OTS does not support the requirements listed in R7 and instead suggests following the principles contained with the NERC Continuing Education Program for developing a valid learning activity. These items include:

   Learning objectives
   Training content or materials
   Identify delivery method and qualifications of instructors
   Learning assessment to assure the learning objectives have been achieved
   Evaluation of the learning activity
   Review and update

   The list in R7 includes several additional documentation requirements that are not beneficial to assuring quality learning activities. While OTS recognizes the NERC CE Program is independent of a Reliability Standard, the documentation requirements for non-NERC CE-approved learning activity should not exceed the well defined items listed for the CE Program.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with “hands-on” experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: As a group of trainers, OTS recognizes the benefits associated with a computer-based simulator whether generic or company specific. However, OTS does not support including this as a requirement in the Standard. Effective "simulation" of either normal operation or an emergency event is the goal and can be accomplished through other methods of simulation.

8. Do you agree that there should be a record of each system operator’s training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☒ No

   Comments: The question asks if a record of each operators training that shows the tasks mastered and the tasks where performance needs improvement. This is somewhat different than the requirements listed in R8 which seem to deal with meeting performance criteria. OTS supports keeping a training record for each operator but does not support the following:

1. A separate record listing all the tasks identified in the job task analysis and whether the operator has "mastered" that individual task or still "needs improvement" is more detailed recording keeping than is needed. The training program and annual training plan for each operator is designed to fill identified gaps in an operator's skill and knowledge needed to accomplish the tasks, thus the concept is addressed in designing the training plan rather than requiring a separate list of the operator's standing with the tasks.

2. Section R8 seems to focus on documenting how the "performance critiera" is met. It indicates appliable entities must track their operator's progress in using training to obtain the knowledge, skill and experience needed to "meet the performance criteria specified in R1.7. for the tasks identified in R1." As OTS has previously mentioned, we fully support a learning assessment at the end of each learning activity to determine if the learning objectives were met for the activity. Successful "performance criteria" is usually executing the skills and knowledge necessary to do the task correctly and in the right timeframe resulting in the desired outcome, essentially doing the task without mistakes. Many topics in operator training do not support the concept that an operator can demonstrate "performance" of the task at the end of the learning activity. Many tasks cannot be performed until an operating condition on the system calls for the task to be performed, which may be days or weeks after the training took place. A "performance criteria" can be a general operating philosophy such as safe and error free operating of the system, but it will be a burden and does not provide and benefit to add performance critiera to "every task" performed.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

☒ Yes

☐ No

Comments: OTS supports a requirement for yearly evaluation of the training program "to meet the criteria for successful performance as identified in R1.7." provided the performance criteria is not task specific as mentioned above in Questions #1 and 8.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

☒ Yes

☐ No

Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: OTS notes NERC documents on violation risk factors state, "These reliability-related risks are proposed for use when determining a penalty or sanction for a violation of that requirement." Thus the purpose of the risk factors is for use when determining a penalty or sanction. Also from NERC documents, the risk factors are intended to represent the following in the operating timeframe:

    High = A requirement that, if violated, could directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures;

    Medium = A requirement that, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures;

    Lower = A requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. A requirement that is administrative in nature;

    With the understanding that violation risk factors are not to rank the importance of a requirement to the industry but rather as an aggravating factor in determining penalties and sanctions, OTS does not support the violation risk factors as listed in the draft Standard. A review of the Measures in the Standard indicate all Requirements are essentially administrative in terms of providing documentation the Requirment has been met. A lack of documentation does not necessarily mean the training or other requirement did not occur. OTS recommends all violation risk factors in this Standard be set at "Lower."

12. Do you agree with the Measures in the proposed standard?

    ☒ Yes

    ☒ No

    Comments: OTS agrees the measures are worded appropriately for the Requirements as written. Of course OTS and others are requesting changes to the Requirements which will require corresponding changes in some wording of the Measures.

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☒ No

Comments: The RRO is identified as the Compliance Monitor for the Standard. The Compliance Monitoring Period and Reset section lists all the potential methods the RRO may use to monitor compliance. OTS recommends Self-certification, Period Audit (required 3-year compliance audit, not the readiness audit), and Triggered Investigations. The Data Retention requirements are more detailed than necessary and OTS recommends a simple requirement for all training documentation and records to be retained for three-years, similar to the requirement of the NERC CE Program.

14. Please identify any Regional Differences that you feel should be included in this standard.

☒ No known Regional Differences

Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☐ Yes

☐ No

Comments: The implementation plan was not posted with the Standard but was posted afterwards. While OTS has not had time to evaluate and make recommendations on the implementation plan, we do recommend all specific dates be removed. The plan notes the dates slide with the approval date of the Standard but OTS believes the approximate dates will do more to confusion the issue than to help.

16. Do you agree with the drafting team that this standard does not need to be field tested?

☐ Yes

☒ No

Comments: OTS recommends field testing should be a standard practice for all NERC Standards. Field testing reveals administrative concerns and sometimes substantive concerns that were not foreseen. All standards should be subject to at least a brief field testing period.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☐ No

    Comments: The implementation plan was not posted with the Standard but was posted afterwards. While OTS has not had time to evaluate and make recommendations on the implementation plan, we do recommend all specific dates be removed. The plan notes the dates slide with the approval date of the Standard but OTS believes the approximate dates will do more to confusion the issue than to help.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: There was no question directly associated with R6 to allow comments. Requirements R4 and R6 address comparable training areas with the primary difference being R4 is for the "annual training plan" and R6 is the "implementation" of the annual training plan. Too many NERC and regional standards seem to say the same thing over and over with the only material difference being context. OTS suggests the drafting team combine R4 and R6 into a single requirment addressing the separate issues of an annual training plan and the associated implementation of the plan. Separate Measures could be written to address these two areas even though they are contained within a single Requirement.

    The OTS is the principle group in the Western Interconnection to support the WECC training program and providing support to the trainers in the West. OTS believes that quality training can and should result in quality System Operators and improved system reliability. Quality training doesn't just happen, it requires analysis and process. OTS supports a requirement for development, delivery, and evaluation of system operator training using a "systematic approach to training" as required in this Standard and as endorsed by the FERC.

    However, a mandatory reliability standard with economic sanctions should address the essental elements and not become too prescriptive in its requirements. The drafting team has shown restraint since early versions of the SAR and removed many requirements. Even though a specific principle of a systematic approach to training makes it more effective, that doesn't mean that principle should be part of a mandatory reliability standard. A reference document describing many of the "how" to do a quality job of using the systematic approach would be helpful. Some of the OTS comments to remove parts of the Standard would fit well within a reference document that is not used to judge compliance.

    OTS requests the drafting team provide detailed responses to the comments expressed in this form and in accordance with the spirit of the standard drafting process.

Finally, OTS thanks the drafting team for your dedicated concern and efforts to improve our industry by helping entities develop valuable and effective training programs for system operators.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Richard Appel	
Organization:	Sunflower Electric Power Corporation	
Telephone:	620-275-0737	
E-mail:	appelrichard@sunflower.net	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: I think Per-002 is adequate in insure reliable trained operators
   Also if NERC is going to inpose a job task analysis on us,NERC should set the minimum standards so it is fair and equitible for everyone.I don't think most companies have enough staff to comply with this standard.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☐ Yes

   ☐ No

   Comments: This is already covered by PER-002

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☐ Yes

   ☒ No

   Comments: Who is going to determine what is competent?NERC should already have a list of people and training companies whom are competent to deliver training.Several companies don't have resourses enough to have full time trainers on staff and must relay on outside entities for most training.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This is unnessary and covered by the CEH application.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This would be great,but in the real world simulators are just to expensive except for the larger utilities and not available for everyone.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments: This is already covered by requiring operatore to have CEH's.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☐ Yes

    ☒ No

    Comments: Not requiring but allowing upgrades as needed.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: I didn't see where the factors are explained.So must disagree.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: I don't think this standard is needed at all. Its just overkill. PER-002 covers training.

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☐ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☐ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

    ☒ No

    Comments: I don't think anybody out there has enough staff on board to implement this standard. If we have a field testing period most would find that it just won't work as written.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☐ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: I don't feel that it should be implemented at all.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: This standard will require additional staff and many man hours to implement. Most utilities don't have the man power to inplement this. Where are these people coming from.This is not needed at this time.As we have PER-002.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs, ISOs, Regional Reliability Councils
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Pepco Holdings, Inc - Affiliates

Lead Contact: **Richard Kafka**

Contact Organization: **Pepco Holdings, Inc.**

Contact Segment: **1**

Contact Telephone: **301-469-5274**

Contact E-mail: **rjkafka@pepcoholdings.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Val Hildebrand	Potomac Electric Power Co.	RFC	1
Vic Davis	Delmarva Power & Light	RFC	1
John Keller	Atlantic City Electric	RFC	1

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments:

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: The requirement is appropriate for entry-level and newly-hired system operators and perhaps as a baseline for incumbent system operations as a starting point for the basis of this Standard. But once a training needs assessment has been completed and presumably any training needed to fill gaps has been remedied, yearly training needs assessments are not required. R3 seems to be suggesting that an annual performance assessment should be conducted to determine possible deficiencies in an incumbent system operator's performance based on a reliability task's criteria. Since performance problems can be caused by a variety of things and remedied by things other than training—it is not appropriate to call this a training needs assessment nor to require one for each incumbent on an annual basis. These performance weaknesses need to be assessed and if training is the appropriate intervention—it should be included in the training plan as identified in our comments to Q4 below.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

   Comments: There is some language difference between this question and the wording in R4 and M4 that should be clarified. This question implies a plan is required for each system operator but R4 and the associated M4 state that one plan is required by the entity. This one plan would identify the set of training activities planned for the entity's

cadre of System Operators for any given year. One plan rather than a plan for each is appropriate and if, as is stated in our comment on Q2 above, the annual performance assessment identifies training as a solution to a performance weakness, that training would be stated generically in this plan.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: A simulator is not necessary and goes farther than that required for either annual training emergency or otherwise or for exercises within other types of training. There are other ways of including simulations in operator training.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments:

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☐ Yes

   ☒ No

   Comments: Periodic evaluation is important, but it is not necessary to evaluate on an annual basis. Rather, the evaluation should be based on known changes to the system, training methods or tasks and should be conducted before the next use of the materials.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

☐ Yes

☒ No

Comments: The Risk Factors are not consistent with the definitions of the Violation Risk Factors in the Reliability Standards Development Procedure adopted August 2, 2006. We need to be careful not to confuse importance with risk. Nothing in a training standard could rise to the level of a High Risk Factor, that quote -is, one that, if violated, could directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures; or (b) is a requirement in a planning time frame that, if violated, could, under emergency, abnormal or restorative conditions anticipated by the preparations, directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition. -unquote. Some of the training requirements may meet the definition for Medium Risk Factor, while most would result in a Lower Risk Factor.

12. Do you agree with the Measures in the proposed standard?

☐ Yes

☒ No

Comments: The Measures should be changed to conform to the previous comments. Specifically M 3, M 4, M 8, M10, and M 11

13. Do you agree with Compliance Monitoring section of the standard?

☒ Yes

☐ No

Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

☐ No known Regional Differences

Regional Difference:

15. Do you agree with the proposed Implementation Plan?

☐ Yes

☒ No

Comments: Phase I is permitted and could take up to one year to complete. Phase II will most likely be dependant on completion of Phase I. Extend Phase II and Phase III each by six months, extending the entire schedule to December 31, 2009.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: See comments to Question 15

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments:

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Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Richard Krajewski	
Organization:	Public Service Co. of New Mexico	
Telephone:	505-241-2432	
E-mail:	rkrajew@pnm.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

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Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☐ Yes

   ☒ No

   Comments: R1.1 PNM does not support identification of the conditions when a task is performed, since most tasks need to be performed under many conditions.

   R1.3 PNM does not support this granularity of identifying if a task is performed individually or alone. PNM does not see a benefit in a reference

   R1.4 PNM does not support including this in the standard. The task will identify the inhererently criticality of the task and does not need a reference.

   R1.7 PNM agrees a job task analysis should be performed to identify the tasks assigned to each operating desk, however PNM does not believe the "analysis" needs to be updated when there is a new or revised task or tool.Too much detail does not make for a better analysis and this requirement places work on operating entities that is not beneficial.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments: A proper gap analysis measuring each System Operator against all the tasks required to be performed will determine how much individual training is required. If done properly, this will identify the yearly training needs. PNM feels that annual assessment of every operator against the entire task force is of value, however suggest a 2 or 3 year interval for this assessment.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

☐ No

Comments: PNM agrees that the annual plan should identify the training it has planned, however since system operators are at different knowledge levels the "anticipated duration" for training topics should not be a requirement as it is different in each context listed in subsections under R4.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

☒ Yes

☐ No

Comments: If by "entities" the standard refer to the electric utility and not the NERC Region or NERC.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: R7 lists documentation required for each "learning activity" used to support its reliability related training. PNM does not support the requirements listed in R7 and instead suggests following the principles contained with the NERC Continuing Education Program for developing a valid learning activity

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with “hands-on” experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: PNM recognizes the benefits associated with a computer-based simulator and uses both generic and company specific. However, PNM does not support including this as a requirement in the Standard. Effective "simulation" of either normal operation or an emergency event is the goal and can be and is accomplished through other methods of simulation at PNM.

8. Do you agree that there should be a record of each system operator’s training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: PNM supports keeping a training record for each operator but does not support a separate record listing all the tasks identified in the job task analysis and whether the operator has "mastered" that individual task or still "needs improvement" because it is a more detailed record keeping than is needed. PNM does not agree that there is benefit to add performance critiera to "every task" performed.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments: Provided the performance criteria is not task specific.

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

☐ No

Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: With the understanding that violation risk factors are not to rank the importance of a requirement to the industry but rather as an aggravating factor in determining penalties and sanctions, PNM does not support the violation risk factors as listed in the draft Standard. A review of the Measures in the Standard indicate all Requirements are essentially administrative in terms of providing documentation the Requirment has been met. A lack of documentation does not necessarily mean the training or other requirement did not occur. PNM recommends all violation risk factors in this Standard be set at "Lower."

12. Do you agree with the Measures in the proposed standard?

    ☒ Yes

    ☐ No

    Comments: PNM notes that changes to requirements will create appropriate changes to measures.

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: The Data Retention requirements are more detailed than necessary and PNM recommends a simple requirement for all training documentation and records to be retained for three-years, similar to the requirement of the NERC CE Program.

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☒ Yes

    ☒ No

    Comments: See response to #18

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

☒ No

Comments: PNM recommends field testing should be a standard practice for all NERC Standards. Field testing reveals administrative concerns and sometimes substantive concerns that were not foreseen. All standards should be subject to at least a brief field testing period.

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

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    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☐ No

    Comments: PNM recommend all specific dates be removed. The plan notes the dates slide with the approval date of the Standard but PNM believes the approximate dates will do more to confusion the issue than to help.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: The drafting team should provide detailed responses to the comments expressed in this form and in accordance with the spirit of the standard drafting process.

    Finally, PNM thanks the drafting team for your dedicated concern and efforts to improve our industry by helping entities develop valuable and effective training programs for system operators.

Please use this form to submit comments on the proposed System Operator Training standard. Comments must be submitted by **October 26, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "SO Training Standard" in the subject line. If you have questions please contact Craig Lawrence at craig.lawrence@nerc.net or by telephone at 609-452-8060.

Please: Enter text only, with no formatting or styles added.
Use punctuation and capitalization as needed (except quotations).
Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Robert Coish	
Organization:	MHEB	
Telephone:	204-487-5479	
E-mail:	rgcoish@hydro.mb.ca	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☒ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☐ **SERC**	☒	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

The System Operator Training standard is deigned to help insure that system operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their bulk power systems.

Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☒ No

   Comments: W agree that these are things that are generally considered when doing a task analysis. We're not sure that they all must be done for each task, which is what your question asks. This is good for a template for a training program task analysis. If this is too prescriptive, an unitended side effect would be for entities to shorten their task list so they can meet all the sub-requirements. The primary requirement should be to have a training program. Also, there is no way that doing a task analysis differently puts the Interconnection at risk of cascading, which is what the High Risk assignment implies. As a side note, the industry still needs to resolve and clarify the risk definitions. The draft standard is an example of people confusing importance with risk.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☒ Yes

   ☐ No

   Comments:

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments: The scope of things mentioned should generally be considered as part of an overall plan. We agree with the question, but this doesn't seem to line up with the requirement.

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

☒ Yes

☐ No

Comments: While a trainer needs to understand the material presented, this requirement implies a second layer of administration to keep track of the qualifications of the trainer. This requirement needs to line up with the requirements of the CEH program. This also is rated as a high risk requirement, which is inconsistent with the definition.

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: The items list in R7 are typically outlined in skills or task-based training and are appropriate as a guideline, but appear to be too prescriptive. There are other valid training activities that wouldn't follow this format. This also needs to line up with the CEH program.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☒ Yes

   ☐ No

   Comments:

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☒ No

   Comments: We agree with "should", but R9 says "shall" and identifies it as a medium risk requirement. The design of an item in a training program (or lack thereof), does not put the Interconnection at risk of cascading. Requirements 4 and 9 could be combined and simplified (provide annual review and a summary of changes).

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments: Your question does not mirror R10. Yes, material should be reviewed. R10 appears to be something that can not be measured, with the exception of applying it after the fact when the operator didn't have perfect knowledge. Also, the measure

implies that even training that will not be offered in a given year must be annually updated. This is another requirement that should be aligned with the CEH program.

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: We agree training is very important. However, we cannot identify any of the items in this standard should be classified above a lower risk. It's the direct actions of the operators that can put the interconnection at risk. Missing an item (or varying) in the design of a training module does not put the Interconnection at risk of cascading.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments: The measures are too complex. There are already requirements that say what training needs to be provided. Over-specifiying how the training is delivered and the detailed design of the program seems to go too far. There are probably four core requirements in the standard. The measures and compliance monitoring should be simplified (some overall score for the requirements that are met).

13. Do you agree with Compliance Monitoring section of the standard?

    ☐ Yes

    ☒ No

    Comments: This needs to be simplified. We're not sure why there would be spot checks and triggered investigations for training. This standard can be evaluated during the normal audit and self-certification cycle.

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☐ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☒ Yes

    ☐ No

    Comments:

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☒ Yes

    ☐ No

Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☐ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☒ Yes

    ☒ No

    Comments: However, more will be needed if the standard is too prescriptive. Most entities will have to put material together for hundreds of tasks and training activities.

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: The System Personnel Training Standard lays out guidelines for a well thought out training program. However, there are other ways to have an effective training program and each organization's needs are not the same. The primary issues relate to the administrative complexity and the compliance elements in the standard. There are a significant number of items for which non-compliance can be assessed. The team proposes that many of these are high and medium risk requirements. High risk requirements are events/items that can directly lead to cascading. Varying the design of a training program cannot directly lead to cascading outages. Also, the team has not proposed what tasks are considered reliability related tasks, leaving it to each company to determine. By not defining a minimum suite of reliability related tasks for Reliability Coordinator, Balancing Authority and Transmission Operator, who will determine if the company identified reliability tasks cover even a reasonable subset of tasks performed by the system operator. If no minimum set of reliability tasks are identified, the standard will not ensure that all companies are doing the right thing and the training of system operators will not be improved.

    The standard should be boiled down to the core training requirements (develop a program, deliver training [including and consistent with CEH], record and assess progress, adjust the program annually). It would be simpler if this standard were measured globally (3 of the 4 requirements with no deficiencies is passing, minor deficieiencies in 2 requirements is level 1, etc.).

    This standard should absorb the 32 hours of emergency training.

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Please: Enter text only, with no formatting or styles added.
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Use more than one form if responses do not fit in the spaces provided.
Submit any formatted text or markups in a separate WORD file.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Ellis Rankin or Travis Besier	
Organization:	TXU Electric Delivery Company	
Telephone:	214-743-6825 or 214-486-4917	
E-mail:	wrankin1@txued.com or tbesier1@txued.com	
NERC Region		**Registered Ballot Body Segment**
☒ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs, ISOs, Regional Reliability Councils
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
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☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

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Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one region or segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information:

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Just prior to the 2003 blackout in the northeastern U.S. and Canada, the Personnel Subcommittee developed a strategic plan for improving industry training programs. In December 2004, the SAR for a system operations training program was first posted for industry comment. The SAR drafting team responded to comments and revised the SAR three times in response to industry comments. Many comments were received with suggestions that varied along the spectrum from indicating that the standard should not be prescriptive to suggesting that the standard should specify that a certain number of hours of training should be provided on a restricted list of topics. Throughout the SAR refinement process, the proposed approach was to require the use of a systematic approach to training. That approach remains central to the draft standard and was supported by FERC in the FERC Staff Preliminary Assessment of NERC Reliability Standards.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Operator Training Standard Drafting Team would like to receive stakeholder comments on this standard. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.com with the subject "SO Training Standard" by **October 26, 2006**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas. If your answer is no, please submit your suggested changes or improvement.

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

   ☒ Yes

   ☐ No

   Comments: The information is typical of classical Job Task Analysis information. However , criticallity of the task(R1.4) needs to be defined or removed. Tasks are critical to reliability or not critical.

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator and the training needs of the incumbent system operator?

   ☐ Yes

   ☒ No

   Comments: An Initial Training Program (as identified in PER-002) should identify the set of knowledge and skill levels that must initially be learned and demonstrated. All operators must successfully complete the initial training regardless of previous training or experience. It is not necessary to perform an initial training needs analysis. A formal training needs analysis could be conducted for a period of time (once a year for 3 years) after completing the initial training plan.

   Incumbent, experienced operators are continually assessed by supervisors and remedial training identified. Formal, yearly needs assessments of all experienced incumbents will make little difference to reliability and take time away from necessary ongoing training.

3. Do you agree with that each entity's training program should include training for entry-level system operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

   ☒ Yes

   ☐ No

   Comments:

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each system operator? (R4.)

   ☐ Yes

   ☒ No

Comments: The annual training plan should identify the training that all operators will complete to maintain knowledge and skills necessary for reliable operation. Individual performance issues will be addressed on an exception basis.

5. Do you agree that entities should verify that the personnel who develop or deliver training to system operators are competent to do so? (R5.)

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the list of training activity components provided in R7.? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The NERC CEH Format should be acceptable for documenting reliability related trainiing. An additional standard is not necessary.

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Simulation that makes a situation "real" to the operator and burdens the operator to make choices and perform tasks under duress is the best method of raising awarness and providing confidence.

8. Do you agree that there should be a record of each system operator's training that shows the tasks that system operator has already mastered and the tasks where performance needs improvement? (R8.)

   ☐ Yes

   ☒ No

   Comments: There should be a record of each system operator's training that shows the tasks that system operator has mastered. The other necessary records are those that document ongoing training and the performance of each system operator in that ongoing training.

9. Do you agree that entities should evaluate their training programs every year? (R9.)

   ☒ Yes

   ☐ No

   Comments:

10. Do you agree that requiring entities to update their training materials as needed before the materials are used is necessary? (R10.)

    ☒ Yes

    ☐ No

    Comments:

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

    ☐ Yes

    ☒ No

    Comments: Based on the definition of Risk Factors in the NERC Reliability Standards Development Procedure, TXU Electric Delivery would use the Lower definition for the standard. Not performing a JTA does not cause a reliability issue.

12. Do you agree with the Measures in the proposed standard?

    ☐ Yes

    ☒ No

    Comments:

13. Do you agree with Compliance Monitoring section of the standard?

    ☒ Yes

    ☐ No

    Comments:

14. Please identify any Regional Differences that you feel should be included in this standard.

    ☒ No known Regional Differences

    Regional Difference:

15. Do you agree with the proposed Implementation Plan?

    ☐ Yes

    ☒ No

    Comments: TXU Electric Delivery believes that it would take 4 years for a phased implementation.

16. Do you agree with the drafting team that this standard does not need to be field tested?

    ☐ Yes

    ☒ No

    Comments:

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

    ☒ No known conflicts

    Conflict:

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

    ☐ Yes

    ☒ No

    Comments: see 15

19. Please provide any other comments you have on this standard that you haven't already provided above.

    Comments: In general , the standard, as written, will significantly increase training and administrative costs and not provide a significant amount of increased reliability. Per-002 and Per-003 provide general guidance to ensure training is conducted and performed appropriately.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Background

The System Personnel Training Standard Drafting Team (SPT SDT) thanks all those who submitted comments with the first posting of the System Personnel Training Standard.

The initial draft of this standard was posted for a public comment period from September 27 through October 26, 2006. The SPT SDT asked industry participants to provide feedback on the standards through a special Comment Form. There were 58 sets of comments, including comments from 174 people representing 91 different entities from all NERC Regions and six of the nine Industry Segments as shown in the table on the following pages. *(Note that although NERC has ten Industry Segments in its Registered Ballot Body, there were only nine Industry Segments when the proposed standard was first posted for comment.)*

In this document, the SPT SDT's consideration of comments is provided in blue text immediately following each comment submitted for each question. A summary response to each question is highlighted in yellow following each question. The following conforming changes were made to the requirements in the standard – changes were made to the associated measures and compliance elements:

- Eliminated the individual requirements for each of the phases of the SAT process (R1, R4, R6, and R9) and replaced these with a revised R1 that necessitates using the SAT process to develop the required training.
- Consolidated R2 and R3 that addressed assessing training needs for entry-level or newly hired experienced System Operators and incumbent System Operators into one requirement, the revised R2 that is applicable to positions, not individuals, as well eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.
- Eliminated the requirement for verification of qualifications for persons developing or delivering training (R5).
- Eliminated the requirement for providing details of training activities (R7).
- Eliminated the requirement addressing the maintenance of the System Operator training program (R10).

Several commenters have identified reasons why compliance with a new training standard may be challenging and while the drafting team is sympathetic to these commenters, the drafting team would also remind those stakeholders that the 2003 blackout occurred when there was voluntary compliance to an Operating Policy that asked entities to provide operator training – and the investigation concluded that not every system operator who was on duty on that day was prepared to recognize and respond to the conditions present on the bulk electric system. From an 'outsider's perspective' a system operator holds a position that is critical to infrastructure. System operator training needs to be viewed in the same light as a pilot's training – you wouldn't want to be a passenger in a plane with a pilot whose skills had not been verified. While the existing certification standard does require that system operators acquire a NERC credential, the content of the exam for that NERC credential is not company-specific and does not cover all the procedures, processes and tools that are available to an individual system operator at a specific work location. The intent of this standard is to ensure that system operators are as prepared as the pilot who has been trained to fly the plane he is in – and is prepared to address not only normal but a variety of abnormal conditions. Nothing less will meet the needs of the entities that rely on electricity for their safety, comfort and livelihoods. Almost every infrastructure critical to our national security relies upon electricity. While providing training does take resources, it is necessary. The drafting team has modified the standard to retain its critical components while eliminating the elements of the standard that explained 'how' to achieve the desired results.

Several stakeholders have commented that the NERC Continuing Education (CE) program should be a substitute for the new training standard. The drafting team disagrees with this position. The CE program does not provide assurance that the system operator sitting at the console has the capability to perform

all of the reliability-related tasks associated with the system operator position. Who would want to be a passenger on a plane that had a pilot who had been trained to take off and land but had never been through training to maneuver through thunderstorms? We need to reach a point where we have assurance that system operators are capable of performing **all** the reliability-related tasks assigned to their position.

The following web page includes the stakeholder comments in their original format; a clean version of the standard, supporting references, and a revised Implementation Plan:

http://www.nerc.com/~filez/standards/System-Personnel-Training.html

Note that a red-line version of the standard and Implementation Plan have not been posted due to the significant changes that were made to these documents since the initial posting.

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Gerry Adamski at 609-452-8060 or at gerry.adamski@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Reliability Standards Process Manual: http://www.nerc.com/standards/newstandardsprocess.html.

Commenter	Organization	Industry Segment								
		1	2	3	4	5	6	7	8	9
1. John Bussman	AECI	x				x	x			
2. James Sorrels	AEP	x								
3. Ron Green (G12)	AEP									
4. Marcel Martin (G16)	AESO		x							
5. Tim Hattaway	Alabama Electric Coop					x				
6. Anita Lee (G5)	Alberta		x							
7. Marion Lucas	Alcoa Power Generating, Inc	x								
8. William J. Smith	Allegheny Power	x								
9. Dave Acton (G7)	Alliant Energy	x								
10. Ken Goldsmith (G9)	ALT									
11. Michael Clime	Ameren	x		x		x	x			
12. Michael Scott	APS	x				x				
13. David Millam (G12)	Aquila									
14. Ron Maki (G12)	Aquila									
15. Bobbi Welch (G7)	ATC	x								
16. Jason Shaver	ATC	x								
17. John Keller (G17)	Atlantic City Electric	x								
18. Scott Kinney (G16)	AVA	x								
19. Edward J. Carmen	Baltimore Gas & Electric	x								
20. Gordon Rawlings	BCTC	x								
21. Rod Byrnell (G16)	BCTC	x								
22. Dave Rudolph (G9)	BEPC									
23. Brian Tuck (I) (G16)	BPA	x								
24. Jerry Ohmes (G12)	BPU									
25. Brent Kingsford (G5)	CAISO		x							
26. John Phipps (G16)	CAISO		x							
27. CJ Ingersoll	CECD			x						

Commenter	Organization	Industry Segment								
		1	2	3	4	5	6	7	8	9
28. Ian Gale (G4)	City of Tallahassee					x				
29. Greg Tillitson (G11)	CMRC									
30. Dale Wadding	Dairyland Power Cooperative					x				
31. Vic Davis (G17)	Delmarva Power & Light	x								
32. Carolyn Wilson (G1)	Duke Energy	x								
33. Jeff Baker (G1)	Duke Energy	x								
34. Jim Hall (G1)	Duke Energy	x								
35. Larry Hartig (G1)	Duke Energy	x								
36. Mark Thiemann (G1)	Duke Energy	x								
37. Nancy DeLeon (G1)	Duke Energy	x								
38. Rick Porter (G1)	Duke Energy	x								
39. Steve Jones (G1)	Duke Energy	x								
40. Tom Pruitt (G1)	Duke Energy	x								
41. Fred Meyer (G12)	EDE									
42. Will Franklin	Entergy						x			
43. Ed Davis	Entergy	x								
44. James Hinson	ERCOT		x							
45. Steve Meyers (G5)	ERCOT		x							
46. David Folk (G13)	FirstEnergy	x		x		x	x			
47. Jeff Boltz (G13)	FirstEnergy	x		x		x	x			
48. Jim Eckels (G13)	FirstEnergy	x		x		x	x			
49. Ed DeVarona (G4)	FP&L	x								
50. Eduardo DeVarona (G8)	FP&L	x		x		x				
51. Jeff Gooding (G8)	FP&L	x		x		x				
52. Eric Senkowicz (G4)	FRCC		x							
53. Linda Campbell (G4)	FRCC		x							
54. Mark Bennett	Gainesville Regional Utilities					x				

Commenter	Organization	Industry Segment								
		1	2	3	4	5	6	7	8	9
55. John Kerr	GRDA									
56. John Kerr (G12)	GRDA									
57. Dick Pursley (G9)	GRE									
58. David Kugel (G14) (G15)	Hydro One Networks	x								
59. Rob MacDonald (G14)	Hydro One Networks	x								
60. Roger Champagne (G15)	Hydro-Quebec	x								
61. Ron Falsetti (G5) (I) (G15)	IESO		x							
62. Brian Reich (G16)	IPC	x								
63. Roderick Conwell (G7)	IPL	x								
64. Bill Shemley (G15)	ISO-NE		x							
65. Kathleen Goodman (G15)	ISO-NE		x							
66. Peter Brandien (G5)	ISO-NE		x							
67. Brian Thumm	ITC	x								
68. Jim Cyrulewski (G7)	ITC	x								
69. Michael Gammon	KCP&L	x								
70. Tom Mielnik (G9)	MEC									
71. Robert Coish (I) (G9)	MEHB	x		x		x	x			
72. Michelle Schlossberg (G7)	MGE						x			
73. Bill Phillips (G5)	MISO		x							
74. Terry Bilke (G7)	MISO		x							
75. Randy Castello (G18)	Mississippi Power Co.			x						
76. Carol Gerou (G9)	MP									
77. Joe Knight (G9)	MRO		x							
78. Alden Briggs (G15)	New Brunswick SO		x							
79. Mike Gopinathan (G15)	Northeast Utilities	x								
80. Roger A. McBeth	Northeast Utilities	x								
81. David Little (G15)	Nova Scotia Power	x								
82. Guy Zito (G15)	NPCC		x							

Commenter	Organization	Industry Segment								
		1	2	3	4	5	6	7	8	9
83. Alan Boesch (G9)	NPPD	x								
84. Ron Gunderson	NPPD	x								
85. Greg Campoli (G15)	NYISO		x							
86. Mike Calimano (G5)	NYISO		x							
87. Gerald LaRose	NYPA	x								
88. Alan Adamson (I) (G15)	NYSRC		x							
89. Hermes Arevalo (G12)	OG&E									
90. Todd Gosnell (G9)	OPPD	x								
91. Robert Williams (G16)	PAC	x								
92. Val Hildebrand (G17)	Pepco	x								
93. Richard Kafka (G17)	Pepco	x								
94. Lauri Jones (G16)	PG&E	x								
95. Albert DiCaprio (G10)	PJM		x							
96. Gerlad Mellinger (G10)	PJM		x							
97. Joseph Willson (G10)	PJM		x							
98. Mark Kuras (G10)	PJM		x							
99. Ray Gross (G10)	PJM		x							
100. Robert Thomas (G10)	PJM		x							
101. Tom Bowe (G10) (G5)	PJM		x							
102. Richard Krajewski (G16)	PNM	x								
103. Jack Bernhardsen (G11)	PNSC									
104. Richard Schwarz (G16)	PNSC		x							
105. Julie Tate	Progress Energy	x		x		x				
106. Bob Johnson (G11)	PSC									
107. Richard Brock (G16)	PSC	x								
108. Richard Krajewski	Public Service Co of NM	x								
109. Steve Johnson (G11)	RDRC									

Commenter	Organization	Industry Segment								
		1	2	3	4	5	6	7	8	9
110. Matthew Santos	San Diego Gas & Electric									
111. Glenn Stephens (G2)	Santee Cooper	x		x						x
112. Kristi Boland (G2)	Santee Cooper	x		x						x
113. Rene' Free (G2)	Santee Cooper	x		x						x
114. Terry L. Blackwell (G2)	Santee Cooper	x		x						x
115. Tom Abrams (G2)	Santee Cooper	x		x						x
116. George Noller (G16)	SCE	x								
117. Andy Bowden (G3)	SCE&G	x		x		x				
118. Arnie Cribb (G3)	SCE&G	x		x		x				
119. Bob Smith (G3)	SCE&G	x		x		x				
120. Brad Stokes (G3)	SCE&G	x		x		x				
121. Dan Goldston (G3)	SCE&G	x		x		x				
122. Ernie Gibbons (G3)	SCE&G	x		x		x				
123. Ernie Mehaffey (G3)	SCE&G	x		x		x				
124. Henry Delk (G3)	SCE&G	x		x		x				
125. Jay Hammond (G3)	SCE&G	x		x		x				
126. Jerry Lindler (G3)	SCE&G	x		x		x				
127. Jonh T. Blalock (G3)	SCE&G	x		x		x				
128. Marion Frick (G3)	SCE&G	x		x		x				
129. Pat Longshore (G3)	SCE&G	x		x		x				
130. Phil Kleckley (G3)	SCE&G	x		x		x				
131. Richard Jones (G3)	SCE&G	x		x		x				
132. Rick Lytle (G3)	SCE&G	x		x		x				
133. Sally Ballentine Wofford (G3)	SCE&G	x		x		x				
134. Shawn McCarthy (G3)	SCE&G	x		x		x				
135. Simon Shealy (G3)	SCE&G	x		x		x				
136. Todd Johnson (G3)	SCE&G	x		x		x				

Commenter	Organization	Industry Segment								
		1	2	3	4	5	6	7	8	9
137. Wayne Stuart (G3)	SCE&G	x		x		x				
138. Jon Crook (G16)	SMUD	x								
139. Dan Kay	South Mississippi EPA				x					
140. John Ciza (G18)	Southern Co. Generation					x				
141. Roger Green (G18)	Southern Co. Generation					x				
142. J. T. Wood (G18)	Southern Co. Transmission	x								
143. James Ford (G18)	Southern Co. Transmission	x								
144. Jim Busbin (G18)	Southern Co. Transmission	x								
145. Marc Butts (G18)	Southern Co. Transmission	x								
146. Mike Oatts (G18)	Southern Co. Transmission	x								
147. Roman Carter (G18)	Southern Co. Transmission	x								
148. Steve Corbin (G18)	Southern Co. Transmission	x								
149. Charles Yeung (G5)	SPP		x							
150. Jim Gunnell	SPP		x							
151. Marilyn Franz (G16)	SPR	x								
152. Gary Nolan (G19)	SRP	x								
153. Mark Avery (G19)	SRP	x								
154. Mike Gentry (G11) (G19)	SRP	x								
155. Mike Pfeister (G19)	SRP	x								
156. Allan George	Sunflower Electric	x								
157. Richard Appel (G12) (I)	Sunflower Electric	x								
158. Mike Wech (G12)	SWPA									
159. Steve Joseph (G4)	Tampa Electric	x								
160. Tom Smith (G16)	TSGT	x								
161. Bill Byrom (G6)	TVA	x								
162. Chris Donilon (G6)	TVA	x								
163. Chuck Owens (G6)	TVA	x								
164. Jerry Landers (G6)	TVA	x								

Commenter	Organization	Industry Segment								
		1	2	3	4	5	6	7	8	9
165. Kathy Davis (G6)	TVA	x								
166. Mike Fielden (G6)	TVA	x								
167. Randy Haynes (G6)	TVA	x								
168. Ricky King (G6)	TVA	x								
169. Darrick Moe (G9)	WAPA									
170. Hank LuBean (G16)	WECC		x							
171. Nancy Bellows (G11)	WECC		x							
172. Howard Rulf	WeEnergies			x	x	x				
173. Allen Klassen (I) (G12)	Westar	x								
174. Jim Maenner (G9)	WPS									

"I" indicates a comment submitted by an individual as well as comment submitted as part of a group
"G" indicates a comment submitted by one of the following groups:

G1 – Duke Energy
G2 – Santee Cooper
G3 – SCE&G ERO Working Group
G4 - FRCC System Operator Subcommittee
G5 - ISO/RTO Council
G6 – TVA
G7 - Midwest ISO Stakeholders' Standards Collaboration Group
G8 – FP&L
G9 – MRO
G10 – PJM
G11 – WECC RC Comments Working Group
G12 – SPP Operator Training Working Group
G13 – FirstEnergy
G14 – Hydro One Networks
G15 – NPCC CP9 RSWG
G16 – WECC Operations Training Subcommittee
G17 – Pepco Holdings
G18 – Southern Co.
G19 – Salt River Project Transmission & Generation Operations

Index to Questions, Comments and Responses:

1. Do you agree with the information that must be collected when doing a job task analysis (R1.1. through R1.7.)?

Summary Consideration:

The majority of the stakeholders that provided comments did not did not support the performance of a job task analysis as a requirement that should be included in this standard. They also did not agree that the requirement should prescribe the information that must be collected when conducting the job task analysis. In addition, several commenters requested that the requirement be revised to include only an analysis of the reliability related tasks, not all tasks.

The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training, not the outcomes or details of each phase.

Question 1		
Commenter		**Comment**
Tim Hattaway; Alabama Electric Coop (5)	no	PER-002 already requires a coordinated training program to ensure reliable system operation.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. Improvements in industry training are warranted based on findings from the '03 Blackout Report and FERC Order 693. In FERC Order 693 "the Commission (FERC) directs that NERC submit a modification to PER-002-0 that: (1) identifies the expectations of the training for each job function; (2) develops training programs tailored to each job function with consideration of the individual training needs of the personnel; (3) expands the Applicability to include reliability coordinators, generator operators, and operations planning and operations support staff with a direct impact on the reliable operation of the Bulk-Power System; (4) uses the SAT methodology in its development of new training programs; and (5) includes the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation."		
John Bussman:AECI (1,5,6)	no	The goal of this standard is to ensure that operators are trained to maintain the BES. If a company has a process in place that already performs this task why must there be a standard that mandates a direction as how one will determine if someone in trained. For example: The NERC PER-002 states that a company will have a process in place to have operators trained to maintain the bulk electric system (BES)
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. In FERC Order 693 "the Commission (FERC) directs that NERC submit a modification to PER-002-0 that: (1) identifies the expectations of the training for each job function; (2) develops training programs tailored to each job function with consideration of the individual training needs of the personnel; (3) expands the Applicability to include reliability coordinators, generator operators, and operations planning and operations support staff with a direct impact on the reliable operation of the Bulk-Power System; (4) uses the SAT methodology in its development of new training programs; and (5) includes the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation."		
Richard Appel; Sunflower Electric Power Co (1,3,5)	no	I think Per-002 is adequate in insure reliable trained operators Also if NERC is going to impose a job task analysis on us, NERC should set the minimum standards so it is fair and equitable for everyone. I don't think most companies have

Question 1		
Commenter		**Comment**
		enough staff to comply with this standard.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of a systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Marion Lucas; Alcoa Power Generating, Inc (1)	no	Each company, not NERC, has the right to decide what, if any, job task analysis should be performed when training its employees. Categorizing specific tasks into a listing for job task analysis documentation should never be considered a High risk factor. Only specific tasks that are considered critical to reliability should be considered in an analysis for compliance to a reliability standard.
Response: The SPT SDT agrees with the comment that the methodology used to perform and the information collected during the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of a systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium. The SPT SDT agrees with the comment that only specific tasks that are considered critical to reliability should be considered and has revised the requirement to include only reliability-related tasks by System Operator positions.		
Will Franklin; Entergy (6)	no	The R1 requirement specifies that the information that must be collected pertains to only reliability related tasks 'identified' by the JTA. Thus the methodology for the JTA should remain under the discretion of the entity. Regarding the list of information related to the reliability tasks identified by the JTA - different training philosophies may not need this much detail in order to adequately train operators to successfully perform the tasks. Employing differing JTA methods and 'required' information neither makes an operator and entity more or less competent and reliable.
Response: The SPT SDT agrees with the comment that the methodology used to perform and the information collected during the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirements such that the methodology used to perform the analysis phase of a systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
SRP (1)	no	Some direction on assessing criticality is warranted here. In R1.4, how does one define the "Criticality of the task with respect to reliability"? What are the criteria? How can there be consistency among individual companies if there aren't any guidelines? It would seem a task is either critical or it is not. Who determines the shades of grey that R1.4 imbues

Question 1		
Commenter		**Comment**
		in its present wording? In order to fulfill the purpose of this standard, ensuring that operators are competent, all tasks that are part of the job should be assessed and trained to as needed. Many of these tasks aren't critical to reliability when looked at individually yet they are required to perform the job. When it comes to sanctions, criticality should be a key consideration. Entities should be required to identify only the tasks that are critical to reliability. These tasks can then be documented and training provided based on an operators need to be trained. The listed R1.1 through R1.7 for each of what could be dozens of tasks that may or may not be critical to reliability isn't necessary and does not justify the resources required to meet this requirement. Our operators perform numerous tasks that are not critical to reliability and should not be subject to this requirement.
Response: The SPT SDT agrees with your comment on criticality and has removed the references to criticality from the requirement. The SPT SDT agrees with the comment that only specific tasks that are considered critical to reliability should be considered and has revised the requirements to include only reliability-related tasks by System Operator positions.		
WECC RCCWG (1,2)	no	Entities should be required to identify only the tasks that are critical to reliability. These tasks can then be documented and training provided based on an operators need to be trained. The listed R1.1 through R1.7 for each of what could be dozens of tasks that may or may not be critical to relaibility isn't necessary and does not justify the resources required to meet this requirement. Our operators perform numerous tasks that are not critical to reliability and should not be subject to this requirement. R1.1 states that the conditions under which the task is performed are to be specified. It is not clear what the intent of requirement 1.1 is. A full set of conditions for each task performed is not necessary for development of training. It seems that other 1.x requirements adequately frame conditional information required for training purposes and Requirement 1.1 should be eliminated.
Response: The SPT SDT agrees with your comment on criticality and conditions and has removed the references to criticality and conditions from the requirement. The SPT SDT revised the requirements such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
John Kerr; GRDA	no	These need additional information for clarification. The process for the JTA should be more of a guide instead of a standard.
Response: The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of a systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must		

Question 1		
Commenter		**Comment**
be included in the development of the training.		
Dale Wadding; Dairyland Power Cooperative (5)	no	The requirements in R1.1 through R1.7 are good guidelines but are too complicated for some relatively simple tasks. R1. should stand alone with the detailed guidance on how to structure a JTA left to the reference documents which are being prepared by the drafting team.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of a systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Jason Shaver; ATC (1)	no	ATC believe that Requirement R1.1 and R1.7 go too far in prescribing what has to be included in a job task analysis. ATC does support the requirement that a job task analysis be performed but does not agree that with the need to prescribe the sub-bullets. ATC recommends that the SDT delete Requirements R1.1 – R1.7.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirements such that the methodology used to perform and the information collected during the analysis phase of a systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
William J. Smith; Allegheny Power (1)	no	Further information is needed to offer an informed opinion on Requirement 1 and the required information specified in R1.1 through R1.7. The term reliability-related needs clarification and specific examples of what fits and does not fit the definition of reliability related. Clarification and or an example of an acceptable job task analysis is also required to properly comment on this standard.
Response: The SPT SDT agrees with your comment on the need to clarify the reliability-related needs and has added a clarifying statement in the applicability section of the standard. In response to your request for examples of reliability-related tasks, the SPT SDT has included a Generic System Operator Task List as part of the revised standard. The SPT SDT revised the requirements such that the methodology used to perform and the information collected during the analysis phase of a systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Santee Cooper (G2)	no	Does R1 require a JTA for all company-specific reliability-related tasks, or only for those tasks judged by a company to warrant a JTA? Does R1 require the JTA to be revised for all new or revised tasks or tools? Is the reference document defining how a JTA is conducted needed to understand the requirements and expectations of this standard and the impact of the associated one year implementation plan for R1-3?

Question 1		
Commenter		**Comment**
Response: The SPT SDT agrees with your comment on the need to clarify the reliability-related needs and has added a clarifying statement in the applicability section of the standard. In response to your request for examples of reliability-related tasks, the SPT SDT has included a Generic System Operator Task List as part of the revised standard. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of a systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
SPP OTWG (1,2)	no	The standards should require a JTA, but the information collected and specified in R1 through R7 should be separate and used as a guide (e.g., and appendix). This would allow each entity to come up with it's own. Actions as a result of a task can be difficult to measure and document. How many categories of criticality are there? Is this a standard or a recommendation? If this is a requirement, what is the minimum requirement for each? Is this a requirement for the industry or for each individual operator?
Response: The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of a systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT has provided links to references on the systematic approach to training (SAT) that can provide further clarification and examples. The SPT SDT agrees with your comment on criticality and has removed the references to criticality from the requirement. The SPT SDT agrees with your comment that the requirement is not for individual operators but is applicable to job positions and has modified the requirement accordingly.		
WECC OTS (1,2)	no	OTS agrees a job task analysis should be performed to identify the tasks assigned to each operating desk. OTS does not believe the "analysis" needs to be updated when there is a new or revised task or tool. We believe R1 should say the task list must be updated. The level of detail for the analysis should be sufficient to identify the task and guide what type of training may be appropriate. Too much detail does not make for a better analysis and this requirement places work on operating entities that is not beneficial. The list in R1.1 through R1.7 is more detailed than is warranted. OTS lists the R1.1 through R1.7 and offers comments on each item: R1.1 "The conditions under which the task is performed." OTS does not support identification of the conditions when a task is performed. Most tasks need to be performed under many conditions. If a task is a critical emergency task the condition is a fundamental part of identifying the task and does not need a separate reference. R1.2 "The actions to be taken in performing the task, including identification of references and tools used in performing the task." OTS supports including this in the

Question 1		
Commenter		**Comment**
		Standard. R1.3 "Identification of whether the task is performed alone or as part of a team." OTS does not support including this in the Standard. Many tasks need to be performed either "alone or as part of a team" depending on normal operating or emergency conditions at the time. Whether a task is generally performed individually or as a team is a fundamental part of identifying the task and does need a separate reference in the standard. R1.4 "The criticality of the task with respect to reliability." OTS does not support including this in the Standard. Singling out tasks as being "critical" to reliability implies other reliability related tasks are not critical to reliability. All tasks identified as being reliability related should be considered important or "critical." If a task is inherently critical it will be known as a fundamental part of identifying the task and does need a separate reference. Criticality can be a relative issue and cannot be measured accurately. R1.5 "The frequency of performing the task." OTS supports including this in the Standard. It can be helpful in developing the annual training plan and considering the frequency of tasks in the refresher or continuing training program. R1.6. "The knowledge, skill, and experience needed to perform the task." OTS supports including this in the Standard. R1.7 "The criteria for successful performance of the task." OTS does not support including this in the Standard. Separately identifying the criteria for "successful performance" of each individual task is not necessary and provides limited benefits. OTS fully supports a learning assessment at the end of each learning activity to determine if the learning objectives were met for the activity. Successful "performance criteria" is usually executing the skills and knowledge necessary to do the task correctly and in the right timeframe resulting in the desired outcome, essentially doing the task without mistakes. Many topics in operator training do not support the concept that an operator can demonstrate "performance" of the task at the end of the learning activity. Many tasks cannot be performed until an operating condition on the system calls for the task to be performed, which may be days or weeks after the training took place. A "performance criteria" can be a general operating philosophy such as safe and error free operating of the system, but it will be a burden and does not provide and benefit to add performance criteria to "every task" performed.

Question 1		
Commenter		**Comment**
Response: The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT agrees with your comment on criticality and conditions and has removed the references to criticality from the requirement. The SPT SDT has revised the requirement to focus on positions, as opposed to individual or team performance. During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard that includes the desired performance.		
Gordon Rawlings; BCTC (1)	no	A job task analysis should be performed to identify the tasks assigned to each operating desk but the "analysis" does not need to be updated when there is a new or revised task or tool. Shouldn't this section say the task list must be updated when there is a change? R1.1 Reliability-related tasks can be performed under many different conditions. How would we identify all the conditions these tasks could be performed under and what purpose does this provide? We believe this should be removed and is not required in the Standard. R1.2 We support including "The actions to be taken in performing the task, including identification of references and tools used in performing the task." in the Standard. R1.3 "Identification of whether the task is performed alone or as part of a team." BCTC does not support including this in the Standard. Many tasks need to be performed either "alone or as part of a team". We believe this should be removed and is not required in the Standard. R1.4 "The criticality of the task with respect to reliability." BCTC does not support including this in the Standard. Seprating out tasks as being "critical" to reliability implies other tasks are less important. There is no benefit to separating "critical" tasks from others. We don't see how this could be measured properly and all tasks that are reliability related should be considered important. R1.5 "The frequency of performing the task." BCTC supports including this in the Standard. It can be helpful in developing the yearly training plan and including infrequency of tasks in the refresher or continuing training program. R1.6. "The knowledge, skill, and experience needed to perform the task." BCTC supports including this in the Standard. R1.7 "The criteria for successful performance of the task." BCTC does not support including this in the Standard. Separately identifying the criteria for "successful performance" of each individual task is not necessary. BCTC fully supports a learning assessment at the end of each learning activity to determine if the learning objectives

Question 1		
Commenter		**Comment**
		were met for the activity. We believe this will be a burden in developing a job task analysis for System Operators and does not provide and benefit to add performance critiera to "every task" performed.
Response: The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of a systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT agrees with your comment on criticality and has removed the references to criticality from the requirement. The SPT SDT has revised the requirement to focus on positions, as opposed to individual or team performance. During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard that includes the desired performance.		
Michael Scott; APS (1,5)	no	During Job Analysis a task list for a position is created, and that determination of whether these tasks are selected for training is also created, typically by a difficulty, importance, and frequency review. This is alluded to in R1.4 and R1.5. This task list should be auditable. During Task Analysis the selected tasks mentioned above are analyzed to identify the conditions, behaviors, and standards to which a task must be performed. The knowledge, skills, and abilities of the selected tasks must be identified. These points are mentioned in R1.1, R1.2, R1.6, and R1.7. The analysis of these selected tasks should be auditable. To measure an individual's mastery of a task, evaluation in a team setting is problematic, if not impossible. We therefore disagree with R1.3. To make the R1 section more usable, we respectfully suggest the following wording: R1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall conduct a System Operator job task analysis (JTA). The analysis must be updated when there is substantive change to the operator's job (e.g. new or revised task or tool). The JTA results shall include: R1.1 A task list containing company-specific reliability-related tasks for each System Operator position, including analysis data used to determine whether the task is selected for training (e.g. infrequent, critical, difficult, etc.) R1.2 Analysis of each task selected for training, including conditions, actions, and standards for performance, and the knowledge, skills, and abilities

Question 1		
Commenter		**Comment**
		required by the trainee.
Response: The SPT SDT agrees with your statements that the task list should be auditable and agrees with the comment on Requirement 1.3. The SPT SDT has revised the requirement to focus on positions, as opposed to individual or team performance. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of a systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
CJ Ingersoll; CECD (3)	no	The phrase "company-specific reliability-related tasks" is too vague and subjective, which impacts the effect of R.1.1-R1.7 negatively. In addition, R1.1 task information realted to "the conditions under which the task is performed" should reference some reasonable aggregation of conditions, such as normal operating conditions, etc.
Response: THE SPT SDT has included a Generic System Operator Task List as part of the revised standard. A generic analysis will not address all the reliability related tasks that a System Operator at a specific entity may perform. Therefore each entity must complete a company-specific analysis to determine the required training. The SPT SDT revised the requirements such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Richard Krajewski; Public Service Co of NM (1)	no	R1.1 PNM does not support identification of the conditions when a task is performed, since most tasks need to be performed under many conditions. R1.3 PNM does not support this granularity of identifying if a task is performed individually or alone. PNM does not see a benefit in a reference R1.4 PNM does not support including this in the standard. The task will identify the inhererently criticality of the task and does not need a reference. R1.7 PNM agrees a job task analysis should be performed to identify the tasks assigned to each operating desk, however PNM does not believe the "analysis" needs to be updated when there is a new or revised task or tool. Too much detail does not make for a better analysis and this requirement places work on operating entities that is not beneficial.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard that includes the desired performance. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT has revised the requirement to focus on positions, as opposed to individual or team performance. The SPT SDT agrees with your comment on criticality (R1.4) and has removed the references to criticality from the requirement.		

Question 1		
Commenter		**Comment**
Jim Sorrels; AEP (1)	no	AEP supports that the standard should require a Job Task Analysis, but the information, collected and specified in R1.1-R1.7, should be identified separately from the standard, as a "Guide", such as an attachment or appendix to the standard. R1.1 should specify the condition categories (e.g., Emergency, Normal, Contingency, etc.). R1.2. should not require actions to be taken in performing the task unless the action is another task or sub-task. Actions may require a matrix or flow chart based on an individual's understanding of basic concepts. This could be very challenging in some cases, especially where there are a number of different actions/responses that are practical, and correct, that would yield similar results. As a result, we have documented operating procedures and plans (e.g., EOP and Black Start plans). R1.2 should simply read: Identification of references and tools, including actions if appropriate, used in performing the task. R1.4 is vague as it needs to specify the different categories of criticality (e.g., Low, Med, High). R1.6 should have the word experience removed or replaced with a different word or phrase within the requirement. Is experience intended to mean operator/trainee assessment by the trainer rather than experience over a time period of doing the task? If an individual has the knowledge and skill to perform the task, experience over time may not be relevent, such as for new tasks involving new tools. Experience comes with performing the tasks. Experience in doing a task may not be practical or possible (except as a lab type demonstration exercise during a training activity) until the tool/task has been proven and utilized in real-time operation. R1.6 should read: The knowledge and skill needed to perform the task; or, The criteria for demonstration of the knowledge and skill to perform the task. R1.7 - The criteria for successful performance is difficult to measure/document for many tasks. R1.7 seems redundant to R1.6, which is duplicative if a demonstration of knowledge and skills has been specified.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard that includes the desired performance. The SPT SDT revised the requirements such that the methodology used to perform and the information collected during the analysis phase of a systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT agrees with your comment on criticality and has removed the references to criticality from the requirement.		
Southern Co (1,3,5,6)	no	While we agree with a Job Task Analysis being performed (Job Description), PER-002 already provides sufficient direction to assure entities develop quality Training Programs and are staffed with "adequately trained personnel".

Question 1		
Commenter		**Comment**
		Requirement 1.3 is too granular. For instance, certain tasks can be performed as part of a team at times or alone at times. Criticality of the task in 1.4 with respect to reliability cannot always be correctly assessed. For example, the consequences of not performing TTC calculations to ensure that TTC capability is accurate may or may not have a critical affect on the system. Requirement 1.5 is too specific-Some tasks are performed continuously while other tasks are asking the system operator to perform studies for emergency outages. Another example is the notification to affected parties about a time error correction taking place. The frequency of these tasks sometimes can not be predetermined and do not reoccur on a steady cycle. A final task that can't have a predetermined frequency is notifications of problems or expected problems in system conditions. These simply happen and you respond as quickly as possible. Recommend removing Requirements 1.3, 1.4, and 1.5.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The SPT SDT has revised the requirement to focus on positions, as opposed to individual or team performance. During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard that includes the desired performance. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of a systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Matthew Santos; SDE&G	no	The JTA should be based on each company's needs, the time, money and man hours to do a JTA is considerable. if you were to use a vender to do the JTA cost will increase. So after you have the JTA done, now you build the training program around it. This is time, money and man hours. Now deliver the training to the troops, Money, time and man hours. Do you have or can you get the personnel to deliver the training? Most companies do not or cannot, so we go to the outside and have a vender do it for us. From what I hear most companies are in the same boat doing more with less and not able to find qualified folks to get all the training done that is now required by the standards. This standard as it stands now would be very hard to comply with, you say phase it in over 2 years, more time is needed, 4 to 5 years would be more realistic for the industry to accomplish this. I disagree with R1.1 clarify conditions?, the task could be performed under normal/emergency conditions. Are you asking for that much detail on each task? It should be performing the task successfully R1.5 every utility is different, the operator may perform the

Question 1		
Commenter		**Comment**
		task once or 50 times a shift what does it matter as long as they do it correctly? R1.7 - What is the criteria for successful performance of a task? It should be what I set it at. anything missed will be addressed.
Response: The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT reviewed the comment that the implementation timeline should be extended and has revised the implementation plan to reflect an implementation timeline of 2 to 3 years.		
Roger McBeth; Northeast Utilities (1)	no	This requirement is overly prescriptive as to the development, content, and maintenance of a Job Task Analysis. This requirement will force every organization to out source, at a significant expense, the initial development of an overly prescriptive complex Job Task Analysis Database and to purchase a complex Learning Management System to manage the JTA data to support this requirement. Given the small training staffs of most training organizations, their time and energy would be better spent performing a less prescriptive informal job task analysis. When the Institute of Nuclear Power Operations (INPO) required commercial nuclear power plants to develop training programs using a Systematic Approach to Training, they not only provided a generic Job Analysis/Task List, they also provided a generic Job Task Analysis for all of the generic tasks that could be used by each of the training organizations. It appears that NERC will only provide a generic task list. A Job Task Analysis (JTA) is much more manpower intensive than a Job Analysis. If NERC will require a company specific task list with all of the requirements specified in requirements 1.1 through 1.7, then they should provide a generic task list and a generic JTA that satisfies requirement 1.1 thru 1.7.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of a systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. In response to your request for examples of reliability-related tasks, the SPT SDT has included a Generic System Operator Task List as part of the revised standard. A generic analysis will not address all the reliability related tasks that a System Operator at a specific entity may perform. Therefore each entity must complete a company-specific analysis to determine the required training.		
Ed Davis; Entergy Services (1)	no	We believe R1 should consist of requiring the responsible entity to conduct a System Operator job task analysis, update that JTA when there is a new or revised task or tool, and specify the criteria for being QUALIFIED TO PERFORM each task. We agree that the responsible entity should keep a list of company-specific reliability-related

Question 1		
Commenter		**Comment**
		tasks assigned to each System Operator position. We believe the draft R1 is overly prescriptive and suggest the last phrase of R1 - and the following information for each of those tasks: - be deleted. We also suggest R1.1 performed alone or as part of a team. If R1.6 is not deleted as part of the above suggestion, then R1.6 should through R1.6 be deleted. If R1.3 is not deleted as part of the above suggestion, then R1.3 should be deleted because it is not significant if a task is be modified to delete the term - experience - from the requirement. JTAs are performed to determine the skills and knowledge needed, not the experience needed, to perform a task. We also believe that R1.7 of the draft standard should require the specification of the - criteria for being QUALIFIED to perform each task. The requirement should not be to specify the criteria for - successful PERFORMANCE of the task. This draft standard should address the criteria for individuals to be QUALIFIED to perform a task, and should address the continuing training for personnel that are QUALIFIED. The standard should not require the employers to specify the CRITERIA for SUCCESSFUL PERFORMANCE.
Response: The SPT SDT revised the requirements such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Duke Energy (G1) (1)	no	We agree that these are things that should be collected when doing a task analysis, which is what your question asks. This is a good for a template for a training program task analysis. However, the question presumes that a JTA is needed to have an effective training program. A JTA dictates that each task that each job function performs be documented in detail. This is an enormous amount of work. Additionally, in a dynamic operational environment where decision making is constant and conditions are changing, tasks are not prescribed. The primary requirement should be to have a training program. JTAs are a good, but not the only, way to establish a baseline for an effective training program. This is too prescriptive, and may lead to entities developing abbreviated task lists solely to meet all the sub-requirements.
Response: The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in		

Question 1		
Commenter		**Comment**
the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Ron Gunderson; NPPD (1) Robert Coish; MEHB (1, 3, 5, 6)	no	We agree that these are things that are generally considered when doing a task analysis. We're not sure that they all must be done for each task, which is what your question asks. This is good for a template for a training program task analysis. If this is too prescriptive, an unintended side effect would be for entities to shorten their task list so they can meet all the sub-requirements. The primary requirement should be to have a training program. Also, there is no way that doing a task analysis differently puts the Interconnection at risk of cascading, which is what the High Risk assignment implies. As a side note, the industry still needs to resolve and clarify the risk definitions. The draft standard is an example of people confusing importance with risk.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium.		
MISO (1,6)	no	We agree that these are things that are generally considered when doing a task analysis. We're not sure that they all must be done for each task, which is what your question asks. This is good for a template for a training program task analysis. If this is too prescriptive, an unintended side effect would be for entities to shorten their task list so they can meet all the sub-requirements. The primary requirement should be to have a training program. Also, there is no way that doing a task analysis differently puts the Interconnection at risk of cascading, which is what the High Risk assignment implies. As a side note, the industry still needs to resolve and clarify the risk definitions. The draft standard is an example of people confusing importance with risk.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium.		
Hydro One Networks (1)	no	As posted, creating a JTA for operating positions can be an onerous undertaking as the list could be quite extensive. From the compliance viewpoint, the task may become onerous, depending on the level of detail and documentation that will be required. For example,

Question 1		
Commenter		**Comment**
		switching operations could be broken down into many sub-tasks such as, routine, planned, contingency, restoration, emergency, low voltage, high voltage, system, auxiliary, SPS, manual, directed, independent etc. To facilite the requirement, NERC could provide a list of tasks for System Operators that entities can use and modify as required to represent their own uniqueness. In addition, there are other ways to determine training needs besides the use of a JTA. For example, - Lessons learned from Operating Experience - Corporate/Divisional Mandated Training - Remedial Training requirements - Government Legislated - Safety Training - New or changed tools, processes, procedures, instructions - New or modified equipment - AdHoc training requirements - Response to feedback or requests for training
Response: In response to your request for examples of reliability-related tasks, the SPT SDT has included a Generic System Operator Task List as part of the revised standard. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Kathleen Goodman; ISO-NE (2) ISO/RTO Council (2)	no	In response to the specific question posed: ISO New England (IRC) agrees that the information listed should be included in a Job Task Analysis (JTA). However, the format of the question focuses on the details of the requirement (i.e. what goes into a JTA) and presupposes the need for the requirement itself. We do NOT agree that a Job Task Analysis should be a NERC mandated requirement. The customized subjective nature of job tasks precludes a 'standardized' requirement. Any approach that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
PJM (2)	no	In response to the specific question posed: The PJM agrees with the IRC that the information listed should be included in a Job Task Analysis. However, the format of the

Question 1		
Commenter		**Comment**
		question focuses on the details of the requirement (i.e. what goes into a JTA) and presupposes the need for the requirement itself. In its present form, it appears that each subject entity would be free to select the JTA model of its choice. The standard needs to identify the criteria that would be used to assess the adequacy of the entity's JTA and other required elements in the Training Standard. PJM does NOT agree that a Job Task Analysis should be a NERC mandated requirement. The customized subjective nature of job tasks precludes a 'standardized' requirement. Any approach that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard. Requirement 1, states that the JTA must be updated whenever there is a new or revised task or tool. The measurement for R1 states that you need a current JTA. It is impossible to evaluate this requirement let alone have consistency across ALL System Operators in North America.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
NPCC CP9 (1, 2)	no	The tasks to be performed by a system operator should be defined by the standard drafting team (SDT). A training program should then be developed by the entity to assure that any and all operators are proficient in those tasks. The standard need not get into the specifics of the training program. NPCC participating members also believe that an operating entity should not be mandated to perform a formalized job task analysis to identify a list of tasks and the corresponding training program.
Response: The SPT SDT has included a Generic System Operator Task List as part of the revised standard. A generic analysis will not address all the reliability related tasks that a System Operator at a specific entity may perform. Therefore, each entity must complete a company-specific analysis to determine the required training. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Alan Adamson; NYSRC (2)	no	The tasks to be performed by a system operator should be defined by the standard drafting team (SDT). A training program should then be developed by the entity to assure that any and all operators are proficient in those tasks. The

Question 1		
Commenter		**Comment**
		standard need not get into the specifics of the training program.
Response: The SPT SDT has included a Generic System Operator Task List as part of the revised standard. A generic analysis will not address all the reliability related tasks that a System Operator at a specific entity may perform. Therefore each entity must complete a company-specific analysis to determine the required training. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
SCE&G ERO WG (1, 3, 5)	yes	Job task analysis are subjective to whomever is developing these tasks and subject to interpretation of the standard and reference document which is currently not available. This approach results in lack of continuity across the industry which should be a goal specifically in an effort to audit compliance. The Natural Gas Transmission Industry has struggled with a a similar standard referred to as the Operator Qualification Rule (49 CFR 192.801) on a larger scale and lessons on implementation can be learned from their experience. The problem of lack of conformity between operating companies showed up in compliance audits specifically in the area of what was a qualifying task and the name of that task. What this industry did after a few years because of the confusion and inefficient program management is develop a list of minimum tasks that applicable parties should address and provide details related to that task as a minimum comparable to those requested in R1.1-R1.7. If one of these tasks did not apply to a applicable party, they simply addressed it in their plan and provided supporting information. Another benefit of conformity, it allows plans to be develop and adoption by applicable operating parties across multiple systems. Additionally, personnel transferring from one applicable party to an other can provide evidence of their past performance to it as it relates to the tasks and begin work which saves time/money and gets qualified personnel working.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT has included a Generic System Operator Task List as part of the revised standard. A generic analysis will not address all the reliability related tasks that a System Operator at a specific entity may perform. Therefore each entity must complete a company-specific analysis to determine the required training.		
Ron Falsetti; IESO (2)	Yes/no	We agree that the majority of the information listed in R1.1

Question 1		
Commenter		**Comment**
		through R1.7 need to be collected to describe tasks to be performed by the personnel to whom the training program is intended. However, we do not feel that a NERC standard should mandate an operating entity to perform a job task analysis to develop this list and the corresponding training program. An industry-wide standard should stipulate that these operating entities (RC, BA and TOP) each develop and deliver a training program that will bring their operators to the competency level required to perform those tasks that the entity is responsible for as specified in the Functional Model. We view the listed items in R1 to be part of the task and work environment description, which can be combined with those listed in R7 and included in the training program document. A way to capture this would be to put the key attributes that must be included in a training program in a template to facilitate compliance audit.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. Based on industry feedback, R7 has been removed from the revised standard.		
Mark Bennett; Gainesville Regional Utilities (5)	yes	Yes, But I believe this is going to end up being a major compliance issue in the future if this SAR goes through as written, What is wrong with PER002-0 dated
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. Certification is outside the scope of this standard.		
MRO (1,2)	yes	In R1.1, the MRO recommends the addition of some examples for the definition of conditions i.e. emergency, normal, etc…; also in R1.4, add some examples of the levels of criticality.
Response: The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT has removed the references to criticality, R1.4, from the requirement.		
Jim Gunnell; SPP (2)	yes	In addition, I believe the JTA should include a list of industry-standard, reliability-related tasks in addition to the company-specific tasks. This would set a standard level of best practice across the industry.
Response: The SPT SDT has included a Generic System Operator Task List as part of the revised standard. A generic analysis will not address all the reliability related tasks that a System Operator at a specific entity may perform. Therefore each entity must complete a company-specific analysis to determine the required training.		
Gerald LaRose; NYPA (1)	yes	An important question resulting from the language used in the Requirement is: What is meant by "company-specific

Question 1		
Commenter		**Comment**
		reliability-related tasks"? One interpretation could be "only those reliability-related tasks that are specific to a given company's operation" (as opposed to generic operator tasks). A second interpretation could be "that subset of all of the tasks derived from the JTA that are designated as reliability-related". Throughout the draft Standard there are repeated references to "tasks identified" and "reliability-related tasks identified". A clearer understanding will substantially aid in determining how onerous this Standard will be.
Response: The SPT SDT agrees with the comment that only specific tasks that are considered critical to reliability should be considered and has revised the requirement to include analysis that considers only reliability-related tasks by System Operator positions. The SPT SDT has revised the requirement to include company-specific reliability-related tasks only and removed all references to “tasks-identified” and "reliability-related tasks identified" from this requirement. The SPT SDT has revised section 4.2 (under Applicability) to address the industry’s concern with the applicability. The intent of this paragraph is to provide in what is meant by reliability-related tasks.		
FRCC SO Subcommittee (1,2,5)	Yes/no	The language as written does not indicate that reliability-related tasks should be associated with the reliability of the Bulk Electric System. As we will detail later, we feel it is important for these training standards to have appropriate flexibility to accommodate training requirements on an entity basis. For example, for an entity that primarily operates a distribution system, it is much easier for them to define their auditable training program if the standard is clear on requirements applying to BES related tasks. LSE and DP operating tasks that do not affect the BES should not be subject to the auditability of those that do. ie. these tasks do not affect the reliability of the Bulk Electric System and as such should not be auditable by NERC. Recommendation: Change the language to reflect Bulk Electric System reliability-related tasks.
Response: The SPT SDT agrees with the comment that only specific tasks that are considered critical to reliability should be considered and has revised the requirement to include analysis that considers only reliability-related tasks by System Operator positions. The SPT SDT agrees with your suggested change to the language to reflect Bulk Electric System reliability-related tasks and has changed the references.		
FPL (1,3,5)	Yes/no	Operating tasks that do not affect the reliability of the BES should not be subject to the same auditability as those that do. The language as written does not indicate that reliability-related tasks should be associated with the reliability of the Bulk Electric System. We feel it is important for these training standards to have appropriate flexibility to accommodate training requirements on an entity basis. Recommendation: Change the language to reflect Bulk Electric System reliability-related tasks.
Response: The SPT SDT agrees with the comment that only specific tasks that are considered critical to		

Question 1		
Commenter		**Comment**
reliability should be considered and has revised the requirement to include analysis that considers only reliability-related tasks by System Operator positions. The SPT SDT agrees with your suggested change to the language to reflect Bulk Electric System reliability-related tasks and has changed the references.		
Allan George; Sunflower (1)	yes	Limit standard to exactly what is required, no need to over extend bounds if intent
Response: Yes, the SPT SDT agrees that standard should reflect minimum acceptable level of performance.		
Dan Kay; South Mississippi EPA (4)	yes	Generally agree with the information that should be collected but, should not be required by NERC in a standard. If & how a job task analysis is done should be left up to the employer not NERC.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Brian Thumm; ITC (1)	yes	Job task analyses can be very detailed. There are also many different scenarios to be considered when developing JTAs. While the list of JTA elements in the standard is sufficient, there could be clearer guidance as to the level of detail that an entity is expected to include in their JTAs, and the extent to which all possible permutations are documented.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
TVA (1)	yes	We do not agree with the use of the word "experience" in R1.3. It is very subjective and difficult to quantify effectively or consistently. We suggest clarification of the meaning or just strike it all together.
Response: The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Michael Gammon; KCP&L (1)	yes	
Michael Clime; Ameren	yes	
James Hinson; ERCOT (2)	yes	
Pepco Holdings (1)	yes	
Howard Rulf; WeEnergies	yes	

Question 1		
Commenter		**Comment**
(3,4,5)		
FirstEnergy (1,3,5,6)	yes	
Allen Klassen; Westar (1)	yes	
Brian Tuck; BPA (1)	yes	

2. Do you agree that the training needs analysis should identify the training needs of the entry-level or newly-hired experienced System Operator and the training needs of the incumbent System Operator?

Summary Consideration:

Most commenters did not agree with the requirement that the training needs analysis differentiate between the training needs of the entry-level, newly-hired experienced, and the incumbent System Operators. The majority of the commenters also expressed concern with the requirement to have an annual training plan developed from the training needs assessments. Several commenters expressed concern with the requirement for individual System Operator assessments, rather than position assessments.

The SPT SDT consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.

Because the approved SAR did include the following language, the SDTSDT did not eliminate the need to assess the performance of individual System Operators:

> The proposed standard will require that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its Company-specific List of Reliability-related Tasks.

To meet the language in the approved SAR, the drafting team did include the following requirement in the revised standard:

> R4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall assess the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks. [Risk Factor: Medium]

Question 2		
Commenter		**Comment**
Marion Lucas; Alcoa Power Generating, Inc (1)	no	No. It is not NERC's responsibility to dictate the training needs of new hires, as OUR company determines what is necessary for training issues to prepare the new hire for performing OUR specific job requirements. NERC should only be involved with the Certification and OUR company shall train the new hires to meet and/or exceed the certification requirements. The Certification test itself is the measure of competence to do the job and NERC need not set a requirement on new hire/entry-level training needs for individual companies on which to be monitored.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not an individual. Certification is outside the scope of this standard.		
Tim Hattaway; Alabama Electric Coop (5)	no	PER-002 already calls for a training program that addresses the initial and continuing training needs of personnel responsible for system operations.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		
John Kerr; GRDA	no	Certification for new operators is already in Standard PER-002. After certification, exposure to training for each operator should be the same program.

Question 2		
Commenter		**Comment**
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. Note that PER-002-0 does not include certification requirements for new operators.		
Will Franklin; Entergy (6)	no	Many entities may employ a 'pipeline' training program for a new operator whereby the trainee receives training whether or not they have previous knowledge, then the knowledge and skill abilities are assessed through testing and a qualification card process. Additionally, to attempt to individually assess the training needs of each incumbent operator would be burdensome to employ and document. Again, some entities may operate under the philosphy that once an individual achieves qualification, and they periodically pass testing to maintain qualification then no additional plan is needed. If they fail, only then is an individual remediation plan is developed.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
Dale Wadding; Dairyland Power Cooperative (5)	no	A requirement to perform an annual training needs analysis for every incumbent system operator is an unnecessary administrative burden. Proposed language would mandate such an analysis whenever there was a substantive change in the system operators JTA.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT revised the standard to clarify that the annual assessment is based on position, not an individual.		
SRP (1)	no	Partially agree. The means proposed to assess the training needs of an incumbent operator would appear to require simulating each and every task identified in R1 and grading every operator on their performance of each every year. This would seem an extremely time intensive process to just identify what you then plan to train them on. Is that truly the intent of this requirement? Entry-level/newly hired operators should not be required to have a needs analysis. These operators can be assumed to need all of our training curriculum. An analysis should be done periodically for incumbent operators. R1 does state that JTA should be reliability-related but it does not say critical-to-reliability. the way it is stated allows for a reasonably short list.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
Brian Tuck; BPA (1)	no	BPA agrees with the basic requirement of performing a training needs analysis to determine training needs, as expressed in requirement R2 and R3. BPA disagrees with

Question 2		
Commenter		**Comment**
		the annual requirement proposed in R3 for incumbent system operators. While BPA agrees that the training needs analysis should occur with some periodicity, evaluating every system operator against the entire task list "at least once every year" is excessive. A complete and thorough assessment should result in a foundation for more than one years worth of training. Prior to going through the complete reassessment again, sufficient time should be allowed for the system operator to complete training and develop skills and knowledge in the areas identified as lacking. BPA suggests a three year cycle rather than every year.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is position-related rather than individual specific. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
John Bussman:AECI (1,5,6)	no	We believe that training needs to be provided for new hire and entry-level, however, not necessarily using R1.1 - R1.7
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, as well eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. R1.1 – R1.7 has been removed from the R1.		
William J. Smith; Allegheny Power (1)	no	The training needs analysis should identify the training needs of the entry-level or newly-hired experienced system operator. Properly trained incumbent system operators should not require a training needs assessment on an annual basis. Particularly since other specific NERC standards identify required annual training and the new NERC Certification credential maintenance program requires continuing training hours in specific categories.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. NERC Certification is a separate program; training provided under this standard's requirements can serve to meet the continuing education requirement for certification.		
Pepco Holdings (1)	no	The requirement is appropriate for entry-level and newly-hired system operators and perhaps as a baseline for incumbent system operations as a starting point for the basis of this Standard. But once a training needs assessment has been completed and presumably any training needed to fill gaps has been remedied, yearly training needs assessments are not required. R3 seems to be suggesting that an annual performance assessment should be conducted to determine possible deficiencies in an incumbent system operator's performance based on a reliability task's criteria. Since performance problems can be caused by a variety of things and remedied by things

Question 2		
Commenter		**Comment**
		other than training—it is not appropriate to call this a training needs assessment nor to require one for each incumbent on an annual basis. These performance weaknesses need to be assessed and if training is the appropriate intervention—it should be included in the training plan as identified in our comments to Q4 below.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
Southern Co (1,3,5,6)	no	We agree that training needs analysis should be done but NERC should focus on assuring training takes place and not on the process. It is unnecessary to differentiate between an "entry-level" and a "newly hired experienced" System Operator. Besides the fact that it is unclear what these terms are intended to represent (one is a job family level term and the other one trying to reflect a degree of experience independent of level), the training considerations (and terms) should focus on initial and refreshing/reinforcing training. If this approach is taken then the experience level or incumbency is irrelevant. For a new operator all training would be initial. For an experienced "incumbent" operator, some would be "refresher/reinforcing" and some might be "initial" for newly assigned tasks.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
Duke Energy (G1) (1)	no	Requirement 2 relies on the successful completion of R1's JTA requirement, which would be very difficult and ever changing. There should be one training program, with the goal to have skilled operators.
Response: The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised R1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
WECC RCCWG (1,2)	no	Partially agree. Entry-level/newly hired operators should not be required to have a needs analysis. These operators can be assumed to need all available training. An analysis should be done periodically for incumbent operators.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		

Question 2		
Commenter		**Comment**
Jason Shaver; ATC (1)	no	ATC does not believe that a separate training program needs be created for entry-level, newly-hired, and incumbent system operators. It is our position that a single training program can be developed to serve as the umbrella. Under the training program umbrella, individuals' training needs can be matched to those course offerings most appropriate to their level of experience and area of need. Requiring the documentation of multiple training programs for the same tasks at varying levels does not enhance system reliability or lead to more educated system operators. Rather, it adds to the administrative burden placed on the trainers, thereby reducing the amount of time available to develop and deliver quality training.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
Michael Scott; APS (1,5)	no	We agree that the new-hire must have an assessment of their training needs, leading to an individualized training plan. We strongly disagree with the recommendation to conduct an ANNUAL assessment of incumbent operator training needs. The Systematic Approach to Training, if properly applied, will lead to a initial training program design that develops qualified personnel for the job position. An entity would doubtless have to conduct a one-time assessment of incumbent operators' training needs, against the newly designed program, filling any gaps with the needed training. Once the incumbents have received the initial training for the job position they have held, there is no further need for annual training needs assessments. New tasks, industry events, enhanced skills training, performance improvement, etc. would be provided, via the Systematic Approach to Training, as continuing education. For the sake of simplicity, we would suggest the following wording for R2 and R3: R2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall assess the training needs of new System Operators, creating individualized training plans for them as needed. The plan will include the topics and the schedule for the training. R3. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall conduct a one-time assessment of the training needs of incumbent System Operators, creating individualized training plans for them as needed. The plan will include the topics and the schedule for the training.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into		

Question 2		
Commenter		**Comment**
one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
Jim Sorrels; AEP (1)	no	Yes. However, the wording of requirements R2 and R3 should be changed to clarify that the intent is for the needs analysis to be performed for each System Operator job classification not for each individual System Operator.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
FRCC SO Subcommittee (1,2,5)	no	As written, the proposed standard requirement requires the development of individual training plans for each system operator that is part of the training program. For many entities that do not have extensive training programs and resources, this is particularly burdensome and unnecessary from a practical standpoint. From a reliability perspective, the "training needs analysis" should focus on the training needs of a company, to achieve reliable operation of its facilities. The program should then make sure that all relevant personnel are adequately "trained" within the bounds of the defined program (as defined within the JTA) which will ensure the most reliable operation of that entity's facilities and subsequently ensure the overall reliable operation of the Bulk System. Individual training needs assessment may be a "next" step in the training evolution, but at this time we feel that any "training needs analysis" must be based on the needs of the entity as a whole (as defined within the JTA) and not the individual operators.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
FPL (1,3,5)	no	The proposed standard requires the development of individual training plans for each system operator within a company's training program. For many entities that do not have extensive training programs and resources, this is particularly burdensome and unnecessary from a practical standpoint. From a reliability perspective, the "training needs analysis" should focus on the training needs of a company, to achieve reliable operation of its facilities. The program should then make sure that all relevant personnel are adequately "trained" within the bounds of the defined program (as defined within the JTA) which will ensure the

Question 2		
Commenter		**Comment**
		most reliable operation of that entity's facilities and subsequently ensure the overall reliable operation of the Bulk System. We feel that any "training needs analysis" must be based on the needs of the entity as a whole (as defined within the JTA) and not the individual operators. Further, this approach will ensure that all operators within a particular operating company receive equal training to maintain and develop operating skills and knowledge.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
Kathleen Goodman; ISO-NE (2)	no	ISO New England agrees that Training programs must address the needs of the individuals, regardless of the experience level. Further, we agree that Training Programs must span the entire spectrum from new hires to experienced individuals. R2 and R3 however, would mandate individual person by person formal assessments. And R3 would impose unprecedented annual 'needs assessments' of each incumbent operator. R2 and R3 go well beyond requiring Corporate Operator Training programs, and go into mandating the practices and procedures for Personalized Training programs. ISO New England does not agree that a one-size-fits-all Assessment requirement will meet the unique and varying needs of the responsible functional entities. As noted in the response to Q1, the customized subjective nature of individual's needs precludes a 'standardized' requirement. Any approach that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
ISO/RTO Council (2)	no	The IRC agrees that Training programs must address the needs of the individuals, regardless of the experience level. Further, the IRC agrees that Training Programs must span the entire spectrum from new hires to experienced individuals. R2 and R3 however, would mandate individual person by person formal assessments. And R3 would impose unprecedented annual 'needs assessments' of each

Question 2		
Commenter		**Comment**
		incumbent operators. R2 and R3 go well beyond requiring Corporate Operator Training programs, and go into mandating the practices and procedures for Personalized Training programs. The IRC does not agree that a one-size-fits-all Assessment requirement will meet the unique and varying needs of the responsible functional entities. As noted in the response to Q1, the customized subjective nature of indiviual's needs precludes a 'standardized' requirement. Any approach that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
PJM (2)	No	The IRC agrees that Training programs must address the needs of the individuals, regardless of the experience level. Further, the IRC agrees that Training Programs must span the entire spectrum from new hires to experienced individuals. R2 and R3 however, would mandate individual person by person formal assessments. And R3 would impose unprecedented annual 'needs assessments' of each incumbent operators. R2 and R3 go well beyond requiring Corporate Operator Training programs, and go into mandating the practices and procedures for Personalized Training programs. The IRC does not agree that a one-size-fits-all Assessment requirement will meet the unique and varying needs of the responsible functional entities. As noted in the response to Q1, the customized subjective nature of indiviual's needs precludes a 'standardized' requirement. Any approach that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard. A training needs analysis should to be conducted for all new entry-level operator candidates, and newly hired experienced operator to determine their present level of accomplishment. However, to mandate that there be an annual Training Needs Assessment of all incumbent system operators is without basis and "over-the-top". If there was an identified deviation in performance, then a determination by entity management would need to be conducted to determine whether or not the performance deviation is a training issue or something else. Not all problems can be resolved by training.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into		

Question 2		
Commenter		**Comment**
one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
Ed Davis; Entergy Services (1)	no	Overall we agree with R2 with the exception that the training needs should be to meet the - criteria for being QUALIFIED to perform each task - and not - the criteria for successful PERFORMANCE of the task.
Response: The SPT SDT has revised the requirement to '"mismatch between the desired and actual performance", consistent with the approved standard's SAR.		
CJ Ingersoll; CECD (3)	no	CECD provided a negative response because CECD does not feel that, unless applicable, resources should be dedicated to developing new-hire training programs. CECD does feel it is appropriate to assess the training needs of operators in general, however it is unclear what evidence an entity must produce to show an assessment was performed. Is the annual training plan evidence that an assessment was performed? As written currently, are entities to assume that entry-level assessments are to be revised as tasks are added versus the annual gap assessments for incumbents?
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the measures for the combined requirement such that evidence of the latest assessment for each position must be provided.		
Roger McBeth; Northeast Utilities (1)	no	This requirement would place a significant administrative burden on a very small training staff to perform a training needs analysis for each operator on over 300 tasks. For small training organizations, it should be sufficient to have hiring practices that require minimum entry-level education and experience and provide a training program based on the entry-level requirements of the position description that addresses all of the tasks for the position. For incumbent operators, it should be sufficient to provide an operator training program that provides continuing training that covers infrequently performed complex tasks that are important to system reliability. The continuing training program should also address training weaknesses/deficiencies that have been identified through management observations of operator performance. It would be an overwhelming task for a small training organization to perform individual training needs analysis for each incumbent operator on over 300 tasks. While we understand the benefit of performing an individual training needs analysis for each newly hired system operator and for the incumbent system operators, we do not feel that the value added by this activity would justify the additional

Question 2		
Commenter		**Comment**
		administrative burden. We would be better served by concentrating on the following: - Develop well defined entry-level requirements - Develop and maintain an Initial Training Program which provides training on all tasks selected for training. - - Develop and maintain a continuing training program that addresses 1) generic deficiencies for all operators, 2) training on core critical tasks
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has considered your suggestions on areas of concentration and based on other stakeholder feedback, believes the suggestions would be considered by stakeholders to be too prescriptive to be included in this standard.		
WECC OTS (1,2)	Yes/no	These should simply be referred to as a training assessment for "initial" training of a System Operator and a training assessment for "continuing" training. It is not necessary to say they are "entry-level or newly hired experienced". A proper gap analysis measuring each System Operator against all the tasks required to be performed will determine how much training is required. However, R3 requires a training needs assessment of each operator to identify performance gaps (we prefer competency gaps or a gap analysis) at least once "every year." This indicates every operator must be assessed against the entire task list at least once a year. OTS agrees this type of assessment of incumbent operators should occur with some periodicity but every year is unnecessary and will lead to unbeneficial concerns of the operators. OTS suggests a two or three year cycle rather than every year.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
Matthew Santos; SDE&G	Yes/no	We interview experienced outside Operators in Transmission and Generation to come into the Transmission (GCC) department. We do verbal/scenario type of questions and look at their resume, if they qualify in this regard, then we proceed with training them in all aspects of Transmission. It does not matter what they say they know, we cover it all (They have to learn our system & procedures) and then test them. This happens until they

Question 2		
Commenter		**Comment**
		are qualified to assume a shift by themselves. I disagree with R2 and R3 this is too much and going to far. Assessments on individual's needs can be captured in their exam results thru out normal training (Refresher/Continual) as it is delivered. And follow up would be done if needed.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
Ron Falsetti; IESO (2)	Yes/no	The training need analysis should identify the training needs and the full spectrum of competency level that must be achieved / demonstrated to perform the tasks covering all levels of the system operator being trained. An entry-level operator may need to start at a lower training level than their more experienced counterparts. Experienced operators, including those who have been certified, may refresh their training at an intermediate level depending on the gaps identified. Analyzing the training needs for a specific group of operators and develop a program specifically for that level may render the program too specific and hence ineffective.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
Michael Gammon; KCP&L (1)	yes	It is important to determine the training requirements for training new Operators, however, on-going training for incumbent Operators should be in the form of training plans that accomplish those things that are important to the job specific needs of a company and to maintain NERC operator certifications. R3 is for unacceptable levels of performance for incumbent Operators to be assessed annually. For those reliability tasks that are done routinely, any performance problems should be addressed as they are known and not wait for an annual assessment. For those reliability tasks that are not done frequently (peak load operating conditions, emergency plans, etc.), those should be part of an annual training program. I would recommend the following language modifications to the proposed standard: **R3.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct a training needs assessment of incumbent System Operator to identify reliability-related training activities that are not routine for the tasks identified in Requirement 1, periodic training required for each non-routine reliability-related task, and a training plan to support maintaining NERC operator certifications and to maintain Operator skill levels at least once every three

Question 2		
Commenter		**Comment**
		years or as additional reliability tasks are added or modified. R4 seems to capture the essence of what I am referring to here, except for a training plan to support maintaining NERC operator certification.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
MISO (1,6) Ron Gunderson; NPPD (1)	yes	There would also be some recurring or refresher requirements. However, it may be that some organizations won't have new operators. The training program should have a goal of having skilled operators. There should be one training program; it doesn't have to be overly prescriptive.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
Jim Gunnell; SPP (2)	yes	In addition, I believe the analysis should include not only the mismatch between the criteria for successful performance and actual performance, but it should also include: a gap analysis between knowledge criteria and actual knowledge, and a gap analysis between knowledge (what you know) and action (what you're able to do) Therefore there are three gap analyses: 1. Performance Gaps 2. Knowledge Gaps 3. Knowledge/Action Gaps
Response: Based on stakeholder feedback, the SPT SDT believes the suggestion would be considered by the stakeholders to be too prescriptive. The requirement has been revised to require the entity conduct an analysis to determine the mismatch between actual and desired performance.		
Gordon Rawlings; BCTC (1)	yes	These should simply be referred to as a training assessment for "initial" training of a System Operator and a training assessment for "continuing" training. It is not necessary to say they are "entry-level or newly hired experienced". A proper gap analysis measuring each System Operator against all the tasks required to be performed will determine how much training is required. However, R3 requires a training needs assessment of each operator to identify performance gaps (we prefer

Question 2		
Commenter		**Comment**
		competency gaps or a gap analysis) at least once "every year." This indicates every operator must be assessed against the entire task list at least once a year. BCTC believes this type of assessment of system operators should occur with some regularity but every year is unnecessary and will lead to work that will not produce any real results, different than a simple gap analysis would. BCTC suggests a simple gap anlysis every 2 to 3 years, or when job duties change significantly, will get the results needed.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
Hydro One Networks (1)	yes	Yes, the analysis should allow to compare a new worker's experience and knowledge (or lack of) versus that of an experienced system operator to facilitate identification of what they need to know and train accordingly.
Response: The SPT SDT agrees with your comment.		
Dan Kay; South Mississippi EPA (4)	yes	Generally agree that the needs of entry and experienced operators should be identified but, should not be required by NERC in a standard. Again, this should be the left to the employer, not required by NERC in a standard
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
Alan Adamson; NYSRC (2)	yes	Before taking an unsupervised shift a system operator needs to have demonstrated proficiency, regardless of past experience.
Response: The SPT SDT agrees with your comment.		
NPCC CP9 (1, 2)	yes	Before taking an unsupervised shift a system operator needs to have demonstrated proficiency, regardless of past experience. The training provided must meet the need of the individual regardless of the level of experience to ensure no gaps are in the training or any assumption of knowledge where there may be not be sufficient background.
Response: The SPT SDT agrees with your comment.		
Richard Krajewski; Public Service Co of NM (1)	yes	A proper gap analysis measuring each System Operator against all the tasks required to be performed will determine how much individual training is required. If done

Question 2		
Commenter		**Comment**
		properly, this will identify the yearly training needs. PNM feels that annual assessment of every operator against the entire task force is of value, however suggest a 2 or 3 year interval for this assessment.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
Santee Cooper (G2)	yes	Training requirements for newly-hired operators can be vastly different from one operator to another. For example, one newly-hired operator may have a background in substation work with knowledge and skills that are applicable to operators while another may have no experience at all. Does the requirement permit a company to determine the training needs of a new hire from a standard JTA and customize training requirements for the employee, or does this requirement imply that a JTA would have to be conducted and established for every new hire?
Response: The SPT SDT has reviewed your comments and have consolidated Requirements 2 and 3 into one requirement that is position-related rather than individual specific and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
SCE&G ERO WG (1, 3, 5)	yes	If a list of reliability related tasks and supporting information is provided, then this processes is manageable. Lack of providing a list of tasks and requirements related will add confusion and unneeded complexity to the process.
Response: The SPT SDT has provided a Generic Task List in the revised standard. A generic job analysis will not address all the reliability related tasks performed by each position at a specific organization. Therefore each entity is required to perform analysis to determine the scope of training.		
Allen Klassen; Westar (1)	yes	But not annually, suggest a 3 year cycle to fit with the overall training needs including Continuing Education for Operator Certification.
Response: The SPT SDT has revised the requirement to clarify that the annual assessment is applicable to positions, not an individual.		
Allan George; Sunflower (1)	yes	See 1
Response: The SPT SDT agrees that standard should reflect minimum acceptable level of performance.		
Mark Bennett; Gainesville Regional Utilities (5)	yes	Refer to 1

Question 2		
Commenter		**Comment**
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. Certification is outside the scope of this standard.		
Edward J. Carmen; Baltimore Gas & Electric (1)	yes	
TVA (1)	yes	
Robert Coish; MEHB (1, 3, 5, 6)	yes	
MRO (1,2)	yes	
SPP OTWG (1,2)	yes	
Richard Appel; Sunflower Electric Power Co (1,3,5)	yes	
Michael Clime; Ameren	yes	
Brian Thumm; ITC (1)	yes	
James Hinson; ERCOT (2)	yes	
Howard Rulf; WeEnergies (3,4,5)	yes	
Gerald LaRose; NYPA (1)	yes	
FirstEnergy (1,3,5,6)	yes	

3. Do you agree with that each entity's training program should include training for entry-level System Operators, continuing training on new tasks or tools, refresher training to improve performance, and annual refresher training to practice tasks that have high criticality and are infrequently performed?

Summary Consideration:

Most commenters agreed that a training program should include training for entry System Operators, continuing training on new tasks or tools, refresher training to improve performance and annual training to practice tasks that have high criticality and are infrequently performed. However, several commenters did not agree with the details that were included in the requirement. The SPT SDT consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.

Question 3		
Commenter		**Comment**
Richard Appel; Sunflower Electric Power Co (1,3,5)		This is already covered by PER-002
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		
Southern Co (1,3,5,6)	no	Each entity should be left to determine the training needs of its personnel. See comments for question #2.
Response: The proposed standard does not prevent the inclusion or the exclusion of any training that meets the needs of an organization's training program. The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
CJ Ingersoll; CECD (3)	no	CECD provides a negative response because CECD does not feel that, unless applicable, resources should be dedicated to developing new-hire training programs. CECD does feel training programs should include continuing training on new tasks or tools and refresher training as described above.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
Michael Gammon; KCP&L (1)	no	R4.2 does not fit with this standard. Any lapses in performance should be dealt with immediately. Each company should have policies in place to allow a company to take any actions necessary to remedy operator performance issues.
Response: The SPT SDT has remove R4 from the revised standard.		
Dale Wadding; Dairyland Power Cooperative (5)	no	Propose changing the word annual to continuing to allow some flexibility in when refresher training is provided.
Response: The SPT SDT has removed R4 from the revised standard.		
Jim Sorrels; AEP (1)	no	No. AEP agrees with the concept, but not with the details of the requirement. It should be clear that each applicable entity needs to have an annual training plan for each job

Question 3		
Commenter		**Comment**
		classification, not plans for each individual operator. In R4.4, the use of the term "continuing training" is not consistent with the use of the term "continuing education" and "continuing training" in the NERC Continuing Education Program Administrative Manual. In the Manual, the term continuing education/training (per the Manual, the terms training and education are used interchangeably) is used to describe any training that extends the basic knowledge and skills required to do a job. Whereas, R4.4 uses the term in the context that continuing training is just one type of training used to extend the basic knowledge and skills to do a job. The use of terminology in the proposed standard should be consistent with existing NERC usage and definitions. R4, R4.2, R4.3: It is not practical to formally train on all reliability tasks on an annual basis. Training is provided for job classification as a result of a training needs analysis and prioritized to address the greatest needs first. Conducting continuing/refresher training to the whole group assures that all get refreshed. Whereas, refresher training on critical tasks already being performed correctly by the group in a job classification, would not need training. If an operator is not performing a task correctly, immediate training or intervention by a mentor or supervisor may be required instead of scheduling a formal structured training session, that is documented in the training program.
Response: The SPT SDT has removed R4 from the revised standard.		
SRP (1)	no	If the training needs analysis is done properly, continuing training and refresher training needs will be identified and planned for. With this in mind is it truly necessary to keep the current wording of R4.2-R4.3?
Response: The SPT SDT has removed R4 from the revised standard.		
Mark Bennett; Gainesville Regional Utilities (5)	no	Not necessarily, Some Systems that perform these functions that are radial feeds and BA's don't need to practice blackstart every year unless a new employee is hired.
Response: This standard does not dictate specific training areas that should be in training programs, but does require that each operating organization perform a needs analysis to determine the training areas that should be included in their specific training program.		
WECC RCCWG (1,2)	no	Partially agree. The annual requirement for refresher training to practice tasks that have high criticality and are infrequently performed should be on an as-needed basis, based on the assessment in R3.
Response: The SPT SDT has removed R4 from the revised standard.		
Ed Davis; Entergy Services (1)	no	We agree with the question as presented here but we do not agree with the way the subject is being implemented in

Question 3		
Commenter		**Comment**
		the draft standard. Please see our suggested changes contained our response to Question 19 in this document, including our concerns regarding Sytsem Operators under contract or System Operators performing tasks identified in R1 under delegation agreement. Please also see our suggested changes to R6 contained in our response to Question 19 concerning the annual refresher training, practice of tasks that have high criticality and are infrequently performed.
Response: The SPT SDT has significantly revised the standard based on industry feedback. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. Based on stakeholder feedback the standard has been reworded such that the successful performance is determined using the systematic approach to training by the entity.		
Ron Falsetti; IESO (2)	Yes/no	Please see our response to Q2.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost.		
FPL (1,3,5)	Yes/no	We agree but would prefer to have defined terms and intervals if necessary. We are uncomfortable with the term "incumbent" and "refresher". Right now, these terms are unbounded (without definitions) and could be subject to various interpretations and misrepresentations. Entry-level could be defined as the interval necessary or training components required for a NERC "certified" individual to become knowledgeable or functional at relevant tasks of the JTA for a particular entity's facility and operations (could be referred to as a qualification process). Once an operator becomes "qualified" then he/she enters the training program as a System Operator subject to a company's continuing training requirements. The term refresher training is also too vague and should either be bounded by EOPS requirements (as already exists), or referred to as continuing training or defined in the standards glossary.

Question 3		
Commenter		**Comment**
Response: The SPT SDT has removed R4 from the revised standard. The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
FRCC SO Subcommittee (1,2,5)	Yes/no	We agree with the concepts. We would prefer to have defined terms and intervals if necessary. We are uncomfortable with the term "incumbent" and "refresher". Right now, these terms are unbounded (without definitions) and could be subject to various interpretations and misrepresentations. Therefore any terms referenced in the requirements, if not defined within the requirements, should be bounded by the addition of a definition within the standards glossary. ie. Entry-level could be defined as the interval necessary or training components required for a NERC "certified" individual to become knowledgeable or functional at relevant tasks of the JTA for a particular entitiy's facility and operations (could be referred to as a qualification process). Once an operator becomes "qualified" then he/she enters the training program as a System Operator subject to a company's continuing training requirements. The term refresher training is also too vague and should either be bounded by EOPS requirements (as already exists), or referred to as continuing training or defined in the standards glossary.
Response: The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has removed R4 from the revised standard.		
Matthew Santos; SDE&G	Yes/no	Each entity should have a documented training program for refresher and continuing training. Each entity should have a training plan for outside operators as well as inside operators coming from Distribution to Transmission. But it all depends on how the entity is set up and what functions they perform. It should not be mandatory to have a entry-level or apprentice type of trainning program if the entity does not need it.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has removed R4 from the revised standard.		
ISO/RTO Council (2) Kathleen Goodman; ISO-NE (2)	Yes/no	The IRC supports a requirement that all responsible entities must have a System Operator Training Plan for maintaining current competencies, learning new competencies, and practicing needed competencies. The Plan should include training that covers all the experience levels for the specific respective entity (not for some undefined common need). All responsible entities must have a plan for entry-level

Question 3		
Commenter		**Comment**
		system operator training, IF and ONLY IF entry-level training is required. However, there is no basis to fully-develop and have-ready-for-delivery an entry-level program if no such need exists.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
PJM (2)	Yes/no	PJM supports a requirement that all responsible entities must have a System Operator Training Plan for maintaining current competencies, learning new competencies, and practicing needed competencies. The Plan should include training that covers all the experience levels for the specific respective entity (not for some undefined common need). All responsible entities must have the option of training entry-level system operators either by internal training resources or by contracting with a training entity to provide same. All responsible entities must have a plan for entry-level system operator training, IF and ONLY IF entry-level training is required. However, there is no basis to fully-develop and have-ready-for-delivery an entry-level program if no such need exists.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has removed R4 from the revised standard.		
Michael Scott; APS (1,5)	yes	We agree with the idea, but again the verbiage used is needlessly wordy. Suggestion: R4. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have an annual training plan that includes: R4.1 Training for new System Operators, as identified in B.R2. R4.2 Training for incumbent System Operators, as identified in B.R3. R4.3 Continuing education for incumbent System Operators, that includes training: • to correct identified performance gaps • based on analysis decisions • on new or revised tasks
Response: Based on feedback from stakeholders, the majority of the stakeholders do not support this level of specificity included in the requirement for the training plan. The SPT SDT has removed R4 from the revised standard.		
Jason Shaver; ATC (1)	yes	Although ATC agrees with the question as posed above, this is not consistent with the way the proposed standard is

Question 3		
Commenter		**Comment**
		written. In addition, we believe that this standard should be written in a way that offers entities the flexibility to meet some or all of their training program requirements via external NERC certified course offerings under the recently approved NERC Continuing Education (CE) Program.
Response: The NERC CE program and the required hours to maintain System Operator certification are independent of the proposed standard PER-005. The proposed Standard PER-005 does not prevent the inclusion or the exclusion of any training that meets the needs of an organization's training program under the proposed standard PER-005 and meets the CEH hour requirements to maintain System Operator certification.		
Duke Energy (G1) (1)	yes	Requirement 3 is also contingent on the successful completion of R1's JTA requirement. This question does not seem to line up with the requirement. Why not replace the requirement with the rephrasing of this the question as a statement?
Response: The SPT SDT agrees that there may be a misalignment between the question and the requirement and will strive to align the requirements and the questions moving forward.		
Robert Coish; MEHB (1, 3, 5, 6)	yes	The scope of things mentioned should generally be considered as part of an overall plan. We agree with the question, but this doesn't seem to line up with the requirement.
Response: The SPT SDT agrees that there may be a misalignment between the question and the requirement and will strive to align the requirements and the questions moving forward.		
Michael Clime; Ameren	yes	Some of the tasks that have a high cricicality and that are infrequently perfromed such as System Restoration and Loss of Control Center Functionality are already addressed in the EOP Standard. If you are going to address those things in the Training Standard then take them out of the EOP one.
Response: The suggested comment to revise the EOP standard is beyond the scope of the approved SAR for this standard.		
SPP OTWG (1,2)	yes	This item requires clarification. Is the standard requiring each person within each company to provide a black start/restoration drill at least once per year? If this is the case, the possibility of meeting this standard is unlikely. Regional and subregional training must be available for entities to participate at the level required by R6.5.2
Response: The SPT SDT has modified the requirement for the Reliability Coordinator to conduct a restoration plan exercise annually in coordination with other entities.		
SCE&G ERO WG (1, 3, 5)	yes	If a list of reliability related tasks and supporting information is provided, then this processes is manageable. Lack of providing a list of tasks and requirements related will add confusion and unneeded complexity to the process.

Question 3		
Commenter		**Comment**
Response: In response to your request for examples of reliability-related tasks, the SPT SDT has provided a Generic Task List in the revised standard. A generic analysis will not address all the reliability related tasks that a System Operator at a specific entity may perform. Therefore you must complete a company-specific analysis to determine the required training.		
Tim Hattaway; Alabama Electric Coop (5)	yes	I agree that training programs should be categorized into initial and continuing training needs; however PER-002 already requires this.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		
Marion Lucas; Alcoa Power Generating, Inc (1)	yes	Continuing endducation, refresher courses on current and infrequently performed jobs is important. We all experience in any job that we perform or with any degree/certification that we hold the need to stay current on latest trend and refresh the lesser used functions. As determined in job reviews for salary administration, to assess competency and further training needs our company already performs these functions, NERC need not be involoved in employee development OR our company's administration functions.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		
Santee Cooper (G2)	yes	However, we do not believe this requirement should be applicable to all new tasks or tools. For example, if tagging is modified such that the action on the part of the operator changes in a minor way, would this require a modification to the JTA and accompanying training plan?
Response: The SPT SDT has removed R4 from the revised standard.		
Dan Kay; South Mississippi EPA (4)	yes	This should be the left to the employer, not required by NERC in a standard.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost.		
Ron Gunderson; NPPD (1) MISO (1,6)	yes	The scope of things mentioned should generally be considered as part of an overall plan. We agree with the question, but this doesn't seem to line up with the requirement.
Response: The SPT SDT agrees that there may be a misalignment between the question and the requirement and will strive to align the requirements and the questions moving forward.		
John Bussman:AECI (1,5,6)	yes	However, not necessarily by R1.1-R1.7 criteria
Response: The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must		

Question 3		
Commenter		**Comment**
be included in the development of the training.		
John Kerr; GRDA	yes	Once certified, entry-level system operators should be encluded with experienced training in order for them to be exposed to all available materails.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
NPCC CP9 (1, 2) Alan Adamson; NYSRC (2)	yes	Again, the SDT needs to identify the knowledge set for a system operator.
Response: The SPT SDT believes the suggestion to include a knowledge set in the standard to be outside the scope of SAR and would be too prescriptive.		
Hydro One Networks (1)	yes	A training program must adapt to the level of experience and knowledge of staff. The training curricula should be tailored to include new operators and experienced ones with refreshers and more advanced levels for the latter.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
Edward J. Carmen; Baltimore Gas & Electric (1)	yes	
William J. Smith; Allegheny Power (1)	yes	
TVA (1)	yes	
MRO (1,2)	yes	
WECC OTS (1,2)	yes	
Richard Krajewski; Public Service Co of NM (1)	yes	
Pepco Holdings (1)	yes	
Will Franklin; Entergy (6)	yes	
Roger McBeth; Northeast Utilities (1)	yes	
Allan George; Sunflower (1)	yes	
Jim Gunnell; SPP (2)	yes	
Howard Rulf; WeEnergies (3,4,5)	yes	
Gerald LaRose; NYPA (1)	yes	

Question 3		
Commenter		**Comment**
Gordon Rawlings; BCTC (1)	yes	
James Hinson; ERCOT (2)	yes	
FirstEnergy (1,3,5,6)	yes	
Allen Klassen; Westar (1)	yes	
Brian Thumm; ITC (1)	yes	
Brian Tuck; BPA (1)	yes	

4. Do you think that each entity should have an annual plan that identifies the training it has planned for each System Operator? (R4.)

Summary Consideration:

Several commenters did not agree that the there should be a requirement to have an annual training plan that identifies the training each entity has planned for each System Operator. The SPT SDT removed the requirement and revised Requirement 1 such that it now identifies the phases of the SAT process that must be included in the development of the training, including analysis, design, development, implementation, and evaluation.

Question 4		
Commenter		**Comment**
James Hinson; ERCOT (2)		Not sure
Response: The SPT SDT has removed R4 from the revised standard.		
Will Franklin; Entergy (6) **R-4**	no	An annual plan for training should be developed & implemented. However, it is not needed on an individual basis.
Response: The SPT SDT has removed R4 from the revised standard.		
TVA (1) **R-4**	no	Does the term "each system operator" refer to individual operators or individual functions? (refer to reply #12)
Response: The SPT SDT has removed R4 from the revised standard.		
FPL (1,3,5) **R-4**	no	The plan should address the training needs of the organization and how those needs will be met by providing the appropriate training to the required personnel (see answer to #2).
Response: The SPT SDT has removed R4 from the revised standard.		
MISO (1,6) **R-4**	no	We agree with a need for a general annual review of the overall program. While each operator should have a few specific items on which they should include in their overall training goals, there does not have to be a separate plan for each individual.
Response: The SPT SDT has removed R4 from the revised standard.		
Duke Energy (G1) (1) **R-4**	no	The overall program should be reviewed annually. While each operator should have a few specific items on which they should include in their overall training goals, there does not have to be a separate plan for each individual.
Response: The SPT SDT has removed R4 from the revised standard.		
Santee Cooper (G2) **R-4**	no	An annual training plan for all operators within the company is fine. However, an annual training plan for each individual operator is not feasible. Once an operator becomes a system operator they should be at a certain level of competency such that individulized training is not needed. Too much individualized training may be an indication of a poor performing operator that is not compatible with the job.
Response: The SPT SDT has removed R4 from the revised standard.		
Ed Davis; Entergy Services (1)	no	We believe responsible entities should have annual plans that identifies the training planned for each system

Question 4		
Commenter		**Comment**
R-4.1		operator. However, we think that it is not necessary to specify that in a reliability standard for the BES and should be deleted from this standard.
Response: The SPT SDT has removed R4 from the revised standard.		
SRP (1) **R-4**	no	We partially agree that this is a helpful planning tool and time permitting, everyone should have one. But does requiring this level of detail on a training plan increase reliability? Does not having it decrease reliability or an operator's skill level? With the dynamic nature of the industry, training plans with this much detail are only educated guesses at best. Should we penalize an entity for not having one? No. Do we penalize them if it doesn't turn out to be accurate? Certainly not. From an audit or compliance standpoint, who is to say that the training plan for employee X is satisfactory or not? What sort of consitent guidelines will be applied by an audit team? How does the drafting team view a "training plan". Does a training plan define targets and goals or is it more binding than that? There should be some leeway for contingencies and changing training needs.
Response: The SPT SDT has removed R4 from the revised standard.		
Pepco Holdings (1) **R-4**	no	There is some language difference between this question and the wording in R4 and M4 that should be clarified. This question implies a plan is required for each system operator but R4 and the associated M4 state that one plan is required by the entity. This one plan would identify the set of training activities planned for the entity's cadre of System Operators for any given year. One plan rather than a plan for each is appropriate and if, as is stated in our comment on Q2 above, the annual performance assessment identifies training as a solution to a performance weakness, that training would be stated generically in this plan.
Response: The SPT SDT has removed R4 from the revised standard.		
Michael Clime; Ameren **R-4**	no	It is hard enough just trying to make sure that every Operator gets in his 32 hours of EOP, System Restoration Training and Backup Facility training, as well as making sure that they are getting the proper allotment of CE hours for re-newing their certificate. Now you are going to expect us to also create an individual training plan for each Operator to also track and correct their deficiencies on a yearly basis. Who is going to do all this work?
Response: The SPT SDT has removed R4 from the revised standard.		
Ron Gunderson; NPPD (1) **R-4**	no	We agree with a need for a general annual review of the overall program. While each operator should have a few specific items on which they should include in their overall training goals, there does not have to be a separate plan for each individual.

Question 4		
Commenter		**Comment**
Response: The SPT SDT has removed R4 from the revised standard.		
John Kerr; GRDA **R-4**	no	Each enity should have a training plan for the trainig process of the job. This would not leave out anyone (entry-level system operators) during the training process.
Response: The SPT SDT has removed R4 from the revised standard.		
Jason Shaver; ATC (1) R-4	no	ATC believes that a training needs assessment should be completed on an annual basis and that, this needs assessment would be one of the items taken into consideration in creating the training program; however, to create a separate training plan for each individual operator is overly prescriptive. ATC asks for the following changes: Changes to Requirement 4 Each RC, BA and TO shall have an annual training plan developed from the training needs assessment that identifies the topics, anticipated durations of the topic, and target schedules. In conjunction with this change, ATC requests the deletion of Requirements 2 and 3. ATC also recommends that the SDT delete Requirements 4.1 – 4.4. These requirements are overly prescriptive. They increase the administrative burden on a company and do not enhance system reliability or lead to more educated system operators. ATC recommends that NERC rewrite this standard in light of NERC's Continuing Education (CE) Program, as there will likely be a large amount of overlap in acquiring CE hours in order to maintain an individual's certification and in fulfilling organizational training requirements. Many companies will be looking to the CE Providers to help them meet their NERC CE hour certification requirements and their internal training program needs at the same time. The organizational training requirements are already tied to an individual's need to maintain certification via PER-003 which requires organizations to staff positions having the primary responsibility for real-time operation of the Bulk Electric System with certifed NERC personnel. If this standard fails to recognize the Continuing Education Program, which has already been approved by the NERC BOT, this standard, as written, will largely serve to increase administrative costs in the industry with minimal additional reliability benefits.
Response: The SPT SDT has removed R4 from the revised standard. The SPT SDT has reviewed your comments and consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals. The SPT SDT has revised the standard to clarify that the annual assessment is based on position versus individual.		

Question 4		
Commenter		**Comment**
The SPT SDT agrees with your comments about R4.1 and R4.2 and has removed R4. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes there is nothing in this standard that conflicts with the CE Program requirements.		
AEP	no	No. However, AEP does believe that each entity should have an annual plan for each job classification of system operator. AEP supports training identification at the job classification level, not at the individual level. The training needs assessment performed for R2 should apply for all entry-level employees for a job classification, similarly the assessment for R3 should apply to all non-entry-level job classifications. New/entry-level employees should not be performing reliability-related tasks (R4.1) on an unsupervised basis as they would not be qualified or NERC certified. The initial training plan should be a part of the annual training plan, but may best be referenced as an attachment or appendix to the annual training plan. It should be a stand alone program separate from that of the continuing education program for incumbent operators. Initial training program time frames for entry-level employees, with little to no experience, generally may extend longer than a year. Annual refresher training, as in R6.5, is the part of the training plan that should give focus on identifying and scheduling training activities for qualified/certified operators. The training plan could require new entry-level operators to receive the same annual refresher training given to qualified/certified operators, in addition to the training they receive in their initial training program, so as to reinforce the concepts of their initial training program. R 4.2 and R4.3 should be combined. If the refresher training of R4.3 is completed, it will address gap refresher training of R4.2, if it exists. The term performance gaps is a somewhat ambiguous term that is open to interpretation. R6 only needs to say "shall implement its System Operator training program as identified and specified in R4". It doesn't need the redundancy of R6.1 - R6.4 R6.5 should then be moved to be included as R4.5 as a type of training identified and targeted by the annual training plan. R6.5.2 is too broad and vague. Need to clarify that ""involving all real-time operating positions" only means involving real-time positions within a control center, not field personnel. Also, the wording needs to be clear that not all operators have to participate in the joint exercise required in R6.5.2.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		

Question 4		
Commenter		**Comment**
The SPT SDT has revised the standard to clarify that the annual assessment is based on position, not individual assessments. The SPT SDT agrees with your comments about R4.1 and R4.2 and has removed R4. The SPT SDT has reviewed your comments on R6, which captured the SAT implementation phase, and therefore removed R6 and created a global requirement for use of an SAT process to develop the required training, the revised R1. The SPT SDT has incorporated R6.5.1 into a revised stand-alone requirement, R3, and R6.5.2 has been removed.		
Alan Adamson; NYSRC (2) R-4	no	R4 should only be a restatement of this question (each entity should have a training program that assures the proficency of the system operators) and not include the details as presently stated in R4 of the draft standard.
Response: The SPT SDT has removed R4 from the revised standard.		
Allen Klassen; Westar (1) R-4	no	Annual plan is too frequent, not looking a the long term plan. Again, suggest a 3 year cycle to fit with the overall training needs including Continuing Education for Operator Certification.
Response: The SPT SDT has removed R4 from the revised standard.		
Brian Thumm; ITC (1) **R-4**	no	The annual training plan should be a comprehensive plan identifying the overall needs of a training program, and not focused in the individual needs of any particular system operator.
Response: The SPT SDT has removed R4 from the revised standard.		
NPCC CP9 (1, 2)	no	NPCC participating members believe R4 should only be a restatement of this question (each entity should have a training program that assures the proficency of the system operators) and not include the details as presently stated in R4 of the draft standard.
Response: The SPT SDT has removed R4 from the revised standard.		
SPP OTWG (1,2)	yes	A three-year plan would be better than an annual plan. A plan for a group of operators (e.g., entry-level system operators, newly-hired experienced operators, qualified/certified operators) would make better use of training. This would also offer refresher training to other operators on the same task.
Response: The SPT SDT has removed R4 from the revised standard.		
Tim Hattaway; Alabama Electric Coop (5)	yes	The sub requirements of R4 are unecessary.
Response: The SPT SDT has removed R4 from the revised standard.		
John Bussman:AECI (1,5,6)	yes	A company should have as a minimum a training program that provide contiuing training at least annually.

Question 4		
Commenter		**Comment**
Response: The SPT SDT agrees with your comment.		
Ron Falsetti; IESO (2)	yes	The will ensure that the training need is reviewed at least annually and a business plan with resource commitment provided.
Response: The SPT SDT agrees with your comment.		
Southern Co (1,3,5,6)	yes	Each entity should have training goals, schedules and an overall plan to address how operator training is to be accomplished
Response: The SPT SDT agrees with your comment.		
Gordon Rawlings; BCTC (1)	yes	It is not clear what "anticipated duration of the topic" is meant to define in the annual training plan. It is expected that "anticipated duration" for a topic to be trained on would be different for entry-level SO's vs refresher training for incumbant SO's. BCTC believes that "anticipated duration" for training topics should not be a requirement as it is different in each context listed in subsections under R4. R4.2 suggests that training should solve all gaps in performance. BCTC would suggest that the standard should say that when an assessment determines training is the solution to a gap in performance it shall be done. Only after an assessment after a performance issue should the decision to train be required.
Response: The SPT SDT has removed R4 from the revised standard.		
WECC OTS (1,2)	yes	It is not clear what "anticipated duration of the topic" is meant to define in the annual training plan. It is expected that "anticipated duration" for a topic to be trained on would be different for entry-level System Operator vs. refresher training for incumbant System Operators. OTS believes that "anticipated duration"for training topics should not be a requirement as it is different in each context listed in subsections under R4.
Response: The SPT SDT has removed R4 from the revised standard.		
Richard Krajewski; Public Service Co of NM (1)	yes	PNM agrees that the annual plan should identify the training it has planned, however since system operators are at different knowledge levels the "anticipated duration" for training topics should not be a requirement as it is different in each context listed in subsections under R4.
Response: The SPT SDT has removed R4 from the revised standard.		
FRCC SO Subcommittee (1,2,5) **R-4**	Yes/no	The plan should address the training needs of the organization and how those needs will be met by providing the appropriate training to the required personnel (see answer to #2). It is also imperative that the requirement include a reference to allow organizations to deviate from the

Question 4		
Commenter		**Comment**
		"anticipated" training plan. This is based on the continuously evolving nature of real-time operations along with identification of operational issues and training needs that are developed as a result of system disturbance analysis.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has removed R4 from the revised standard.		
Matthew Santos; SDE&G	yes	But due to manpower in operator ranks and in training sections it is very hard to comply with such a schedule. First you will spend a lot of time putting it together and then a lot of time changing it due to shift/personnel issues. A basic plan (Based on your system) will work for all system operators. Make a list of all the training that is needed for Refresher/Continual (Continual will change due to additions of new equipment or operating practices) training that needs to be done for all the operators trying to make it an indiviual plan is not worth the effort. If you get some tracking software you can run reports on who needs or has not done what training.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT agrees with the comment that an entity needs to be allowed to adjust the training plans to meet changing needs.		
Hydro One Networks (1)	**yes**	A plan and schedule should be developed and implemented. However, some flexibility should exist in the plan to allow for Ad-hoc or unplanned/unforseen training requirements.
Response: The SPT SDT agrees with the comment that an entity needs to be allowed to adjust the training plans to meet changing needs.		
CJ Ingersoll; CECD (3)	**yes**	However, there must be flexibility for variations from the plan, because of the nature of real time operating environements.
Response: The SPT SDT agrees with your comment.		
Dale Wadding; Dairyland Power Cooperative (5)	**yes**	R4.1 through R4.4 are unnecessary repitition and should be deleted.
Response: The SPT SDT has removed R4 from the revised standard.		
SCE&G ERO WG (1, 3, 5)	**yes**	Annual training for System Operators is agreeable. To develop an individualizeed training program to any level of detail will be difficult to manage. However, if a standard list of applicable reliability related tasks are provided then individual training becomes mute. All operators will be

Question 4		
Commenter		**Comment**
		required to demonstrate core competantancy. It would be left to management and the employee of the steps necessary to prepare an employee to qualify for applicable reliability related tasks.
Response: The SPT SDT has removed R4 from the revised standard. In response to your request for examples of reliability-related tasks, the SPT SDT has provided a Generic Task List in the revised standard.		
Marion Lucas; Alcoa Power Generating, Inc (1)	yes	Yes, I agree that the training plans should be developed by each company to suit its needs but it may not be necessary to develop an individual plan for each operator as this determination would be a result of the employee review process.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
PJM (2) Kathleen Goodman; ISO-NE (2) ISO/RTO Council (2)	yes	PJM (ISO-NE) (IRC) supports ongoing Training Programs, but does not support a standard that requires a program "for each operator". Operator-specific programs may be an admirable objective, but they are not always practical.
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		
WECC RCCWG (1,2)	no	Partially agree. An annual plan is a good idea but the operating environment is so dynamic that compliance measurements are impossible to determine. Who is to say that the training plan for employee X is satisfactory or not?
Response: The SPT SDT has reviewed your comments and has consolidated Requirements 2 and 3 into one requirement that is applicable to positions, not individuals, and eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators. The SPT SDT has revised the standard to clarify that the annual assessment is based on positions, not an individual.		
MRO (1,2)	yes	Some entities have procedure documents for activities such as switching where an individual will go out and perform the task under the direct supervision of a SO, does this standard apply to those individuals that are under the direction of the SO?
Response: The applicability section of the standard has been expanded to clarify the System Operators that are included in this standard.		
Dan Kay; South Mississippi EPA (4)	**yes**	This should be the left to the employer, not required by NERC in a standard.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		
Michael Scott; APS (1,5)	yes	See item 3 above.

Question 4		
Commenter		**Comment**
Response: The majority of the stakeholders do not support this level of specificity be required in the training plan. Therefore, the SPT SDT has not included these details in the requirement		
Edward J. Carmen; Baltimore Gas & Electric (1)	yes	
Robert Coish; MEHB (1, 3, 5, 6)	yes	
William J. Smith; Allegheny Power (1)	yes	
Mark Bennett; Gainesville Regional Utilities (5)	yes	
Richard Appel; Sunflower Electric Power Co (1,3,5)	yes	
Jim Gunnell; SPP (2)	yes	
Howard Rulf; WeEnergies (3,4,5)	yes	
Gerald LaRose; NYPA (1)	yes	
Roger McBeth; Northeast Utilities (1)	yes	
Allan George; Sunflower (1)	yes	
FirstEnergy (1,3,5,6)	yes	
Brian Tuck; BPA (1)	yes	

5. Do you agree that entities should verify that the personnel who develop or deliver training to System Operators are competent to do so? (R5.)

Summary Consideration:

The majority of the commenters did not agree that a requirement should be included in the standard that necessitates entities to verify that the personnel who develop or deliver training to System Operators are competent. Since this requirement was outside the scope of the approved SAR, the SPT SDT removed this requirement from the revised standard.

Question 5		
Commenter		**Comment**
MRO (1,2)		The region is being requested to define competency as it is seen from the perspective of the regional members, as this definition may vary from member to member. The competency of the trainer will be reflected in how each entities' system operators meet the myriad of requirements in this standard. If the entities' system operators training meets the requirements in this standard, the assumption can be made that the trainer is competent. This requirement is not needed. This is a business decision and should not be a requirement in this standard.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
CJ Ingersoll; CECD (3)	no	CECD does not think this should be included in this standard. CECD does not think a company is not going to waste limited time and resources on training provided by unqualified individuals. This may be appropriate for CEU type training where credit is provided but it is not a requirement that should be applied here.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Jason Shaver; ATC (1)	no	ATC believes that Requirement 5 is both unnecessary and overly burdensome. We recommend that this requirement including its sub-requirements be deleted from the standard. Again, ATC believes that this standard should be written in a way that offers entities the flexibility to meet some or all of their training program requirements via external NERC certified course offerings under the recently approved NERC Continuing Education Program. Therefore, the burden for providing qualified instructors lies with the CE Provider and NERC in approving Individual Learning Activity (ILA) applications. As written, this standard creates duplicative requirements on the entity to track CE Provider credentials and substantiate the credentials of training provided by external instructors. This is the job of NERC under the CE Program. Failure for this standard to acknowledge an existing, NERC approved Continuing Education Program, merely because it has been developed by a separate arm of NERC is insufficient justification to place this additional administrative burden and cost upon the industry. The standard, as written, requires each industry member to create its own set of training records which in large part will be duplicative of the data that NERC has already

Question 5		
Commenter		**Comment**
		captured under its CE program.
Response: Based on stakeholder comments, the SPT SDT has removed R5. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes there is nothing in this standard that conflicts with the CE Program requirements.		
Ron Falsetti; IESO (2)	no	The desired results of this standard are operator competency and the responsible entities developing and providing the training. An industry-wide standard should not have to require each entity to provide competent instructors. Incompetent instructors will soon be replaced by competent ones as soon as the entities fail to secure a sufficient number of certified operators to meet other NERC requirements. Also, by having such a requirement, what follows would likely be "instructor certification" to assess instructors' competency. This is not necessary.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Brian Tuck; BPA (1)	no	PA agrees that personnel assigned to develop or deliver training should be competent to do so. However, BPA strongly disagrees that the verification of competency should be done by NERC, the RRO, or any other outside entity.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
SRP (1)	no	Who decides what is an acceptable level of knowledge of the subject matter? Who decides who is competent in developing training or in delivering training material? With no established parameters, enforcement of this requirement will be subjective and arbitrary. It is doubtful that an entity would spend the time and resources to train personnel with a trainer that wasn't competent. This situation would not be acceptable to most entities no matter what the NERC requirements are. If this remains a requirement, it will amount to no more than a rubber stamp of trainers qualifications since this is impossible for NERC or a Compliance Review team to determine with no criteria for "competent" or for "qualifications". What works for one company may not work for another. DOE Good Practices place this responsibility with line managment. It is probably OK to let each company establish who is responsible to make the determination. Ultimately the entity (BA, TO, RC) will be held to the requirement. Some quantification of the qualifications in R5 may help apply consistency among companies and provide objective criteria for compliance auditors.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Howard Rulf; WeEnergies (3,4,5)	no	A company can do this for its internal training. For training from a NERC CE provider, whether instructor led, on-line, or video, this verification should be done by NERC and entities should not need to re-verify what NERC should

Question 5		
Commenter		**Comment**
		have already done.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Jim Sorrels; AEP (1)	no	No. Competency in this area would not be easily measured. Being competent reflects such attributes as being qualified, capable, fit, and adequate. AEP does not disagree that entities should use competent and qualified trainers. The issue is how to measure that. Additionally, we do not believe there exists a "qualification certificate" that would be pertinent to the trainers in our industry. Therefore, R5 should be a guideline not a requirement.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Matthew Santos; SDE&G	no	Personnel who develop and/or deliver the training should be experianced in those areas of their expertise, if not then bring in the SME's (Subject matter Experts) to round it out. If the students are learning (Exam Results), knowledge transfer is being done. Other than that who ever is the trainer (Mostly those that were Operators) should have a record of being competent in their previous position(s). Attending Train the Trainer courses is desireable but not mandatory. What do you mean when you say Verify? Just looking at their work history or what? How would we measure this? By surveys?
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
WECC RCCWG (1,2)	no	The qualifications requirement is vague. How much operating knowledge is enough? When training is administered, audits of the training should be used to determine adequacy. The current requirement and measure would, in effect, amount to no more than a rubber stamp of trainers qualifications since this is impossible for NERC or a Compliance Review team to determine.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
ISO/RTO Council (2) Kathleen Goodman; ISO-NE (2)	no	A requirement that each entity verify trainer competency mandates each entity to assume an expertise that is outside the scope of those reliability entities. The IRC (ISO-NE) supports ongoing Training Programs that employ systematic approaches to training. Such programs, including NERC's current Continuing Education program, include a feedback component from the participants in the areas of content and instructor competency. Although participant verification of the competency of the instructors is an inherent component of such systematic approaches, a standard on verification is unnecessary.

Question 5		
Commenter		**Comment**
		As note in the responses to Q1 and Q2, any standard that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard. To meet the FERC directive the standard must include a definition of competence and the measures used to assess that competence.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
PJM (2)	no	A requirement that each entity verify trainer competency mandates each entity to assume an expertise that is outside the scope of those reliability entities. For this requirement to remain in this standard, the industry would need to define what competence is and what measures are used to assess competency before requiring it of anyone. Incompetent trainers will be identified by system operators failing the NERC certification tests. Since uncertified operators are prohibited from real-time operations the integrity of the system is not threatened - however, continuing such test failures would likely result in the trainers being replaced. As note in the responses to Q1 and Q2, any standard that requires the responsible entity to define the terms and conditions of a requirement becomes what FERC calls (and objects to) a 'fill-in-the-blank' standard. To meet the FERC directive the standard must include a definition of competence and the measures used to assess that competence.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Gerald LaRose; NYPA (1)	no	The Trainer competencies cited in 5.1.2 (systematic approach) and 5.2.1 (delivery) are subjectively determined at best and may force many entities into the untenable, and undesirable, position of having to completely outsource their training needs.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Richard Appel; Sunflower Electric Power Co (1,3,5)	no	Who is going to determine what is competent?NERC should already have a list of people and training companies whom are competent to deliver training.Several companies don't have resourses enough to have full time trainers on staff and must relay on outside entities for most training.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Ed Davis; Entergy Services (1)	no	Again, we agree with the question as presented here but we do not agree with the way the implied subject is being implemented in the draft standard.

Question 5		
Commenter		**Comment**
		Our concern here may be expectations, or terminology or semantics. The draft standard states the responsible entities shall VERIFY that persons developing or delivering training have the following qualifications:. VERIFY is a very nebulous term. Are audit teams going to accept a responsible entity's verification procedure and results? Are there industry-wide certification organizations that might be included in this standard whose stamp of approval would be acceptable to auditors so that responsible entities will only have to see that stamp of approval to know they are meeting this requirement? Is the responsible entity expected to give a test to the employees of a potential vendor to - verify - the employee of the potential vendor is qualified? Entergy employees who are subject matter experts in developing training programs using the systematic approach provide training to other Entergy employees. Is Entergy (or other reponsible entities) expected to have their subject matter experts certified to satisfy the "competency" requirement R5.1.2? CERTIFIED by whom? Who establishes the VERIFICATION criteria - the responsible entities or the NERC auditors? Entergy employees who are subject matter experts also provide training for other Entergy employees. Is Entergy (or other reponsible entities) expected to have their subject matter experts certified to satisfy the "competency" requirement in R5.2.1? CERTIFIED by whom? Who establishes the VERIFICATION criteria - the responsible entities or the NERC auditors? We suggest this requirement be changed to specify that the responsible entities establish the verification criteria, as follows - Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify - to the satisfaction of that Reliability Coordinator, Balancing Authority or Transmission Provider - that persons developing or delivering training have the following qualifications:.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Duke Energy (G1) (1)	no	While a trainer needs to understand the material presented, this requirement implies a second layer of administration to keep track of the qualifications of the trainer. This requirement needs to line up with the requirements of the CEH program. How would you determine or measure competency in development and delivery of training? Who would be your trainers?
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Ron Gunderson; NPPD (1)	Yes/no	While a trainer needs to understand the material presented, this requirement implies a second layer of

Question 5		
Commenter		**Comment**
		administration to keep track of the qualifications of the trainer. This requirement needs to line up with the requirements of the CEH program. This also is rated as a high risk requirement, which is inconsistent with the definition.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
NPCC CP9 (1, 2)	Yes/no	NPCC participating members believe that although it is important for the trainer to have basic understanding and competency of the subject matter, it is not a measurable metric for compliance. Many believe that incompetent trainers will result in system operators failing the "test" and that they will ultimatly be identified for more simplistic performance based processes than need to be stated in this standard.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Santee Cooper (G2)	yes	Will the company be permitted to define competency and the appropriate level of operating knowledge referenced in R5, or will the criteria for these be established by an external entity? If the critieria is established by an external entity, would an SME be permitted to provide training under the supervision of an individual "qualified" by the criteria? If the criteria is established by an external entity, should it be included in the standard?
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
FRCC SO Subcommittee (1,2,5)	yes	Not a "High" risk factor . Language should provide for the use of subject matter experts (SMEs) in the development and delivery of training with the direction and assistance from an individual that has competency using a systematic approach to training.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
SCE&G ERO WG (1, 3, 5)	yes	It is impractical at times for the trainer to be the subject matter expert or knowledge on the subject matter, but may have individual(s) present to address questions or concerns which should be allowed. It allows the best of both worlds a good trainer and knowledgeable parties.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Robert Coish; MEHB (1, 3, 5, 6) MISO (1,6)	yes	While a trainer needs to understand the material presented, this requirement implies a second layer of administration to keep track of the qualifications of the trainer. This requirement needs to line up with the requirements of the CEH program. This also is rated as a high risk requirement, which is inconsistent with the definition.

Question 5		
Commenter		**Comment**
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
William J. Smith; Allegheny Power (1)	yes	Certainly anyone who develops or delivers training to system operators must be competent to do so. However, the term operating knowledge needs to be further clarified. If a person lacks actual operating experience for a particular task, would they not be considered competent to develop or deliver training to system operators? In R5.1.2 and R5.2.1, what criteria will be used to establish competency? If an individual has actual operating experience of a particular task, but has not been formally trained in delivering training, will they be considered competent?
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Marion Lucas; Alcoa Power Generating, Inc (1)	yes	Again, this is an administrative function that each company should oversee, to assure it will be able to operate in a reliable manner, consistent with the NERC Standards that apply to RELIABILITY, and NOT what NERC decides is the criteria for measurement of a trainer's competency.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Will Franklin; Entergy (6)	yes	Of course the training developers and presenters should be competent. However, how would one verify the competence? What qualifications would be acceptable (M5)? This is subjective. R5 - R5.2.1 adds ambiguities into the standard.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Tim Hattaway; Alabama Electric Coop (5)	**yes**	Determining the compentency of a personnel delivering training appears to be very subjective.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
John Kerr; GRDA	**yes**	However, who determines the qualifications for this. The word competent leaves room for several loop holes.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Brian Thumm; ITC (1)	**yes**	Competency of a trainer is subjective. Guidance should be provided on how to assess and verify the competency of both developing and delivering operator training. Competency should be more than having attended a training class (e.g., Train-the-Trainer). Competency can be measured using various metrics to assess the actual effectiveness of the trainer of the training program as a whole. NERC should consider definitive standards for assessing and verifying competency of training personnel if such competency is to be included as such a key element of this particular standard.

Question 5		
Commenter		**Comment**
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Hydro One Networks (1)	yes	Clarification must be provided on what is meant by "verification." Attendance to a course on training facilitation doesn't guarantee competency in delivery. Sometimes it is difficult to expect a subject matter expert (SME) to be also a good instructor. In these cases, assistance in facilitation may be required. As for "competency in development using a systematic approach"…some SMEs may not be competent in this development. Therefore, assistance and staging the development may be required to ensure an adaquate end product.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Jim Gunnell; SPP (2)	yes	I would add to the categories of competency: competency in assessment methods to ensure valid and reliable assessment tools which measure both knowledge and performance.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Allan George; Sunflower (1)	yes	Can competent be defined as NERC Certified?
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Southern Co (1,3,5,6)	**yes**	Recommend that NERC leave the levels of competency to the individual Utility to decide what is an acceptable level. Not all electrical systems are the same.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Michael Scott; APS (1,5)	Yes	The answer to the question above is Yes. But we disagree with what the standard says. According to the proposed standard, if you develop training you must know the material and know the training process, but if you implement training (aka: teach) you must only know the training process. We disagree. We suggest the following: R5. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify that persons developing or delivering training have the following qualifications: R5.1 Operating knowledge in the subject matter covered by the training activity R5.2 Competency in developing training using a systematic approach
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
WECC OTS (1,2)	Yes	The key phrase in this question is "entitites" verify the competence of those that develop and deliver training. OTS does not support outside entities such as NERC or

Question 5		
Commenter		**Comment**
		the Regional Reliability Organizations determining if personnel are competent.
Response: Based on stakeholder comments, the SPT SDT has removed this requirement.		
Michael Clime; Ameren	Yes	Who are the entities mentioned that are going to certify that each person developing and doing the training is capable? Is there going to be a certification program to do this?
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Richard Krajewski; Public Service Co of NM (1)	Yes	If by "entities" the standard refer to the electric utility and not the NERC Region or NERC.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
FPL (1,3,5)	Yes	Not a "High" risk factor . Language should provide for the use of subject matter experts (SMEs) in the development and delivery of training with the direction and assistance from an individual that has competency using a systematic approach to training.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Gordon Rawlings; BCTC (1)	Yes	The key phrase in this question is "entitites" verify the competence of those that develop and deliver training. BCTC believes the wording in the standard means that our entity will determine competency to train our system operators. BCTC does not support outside entities such as NERC or the Regional Reliability Organizations determining if training personnel are competent.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Dan Kay; South Mississippi EPA (4)	**Yes**	This should be the left to the employer, not required by NERC in a standard.
Response: Based on stakeholder comments, the SPT SDT has removed R5.		
Dale Wadding; Dairyland Power Cooperative (5)	Yes	
Edward J. Carmen; Baltimore Gas & Electric (1)	Yes	
TVA (1)	yes	
Michael Gammon; KCP&L (1)	yes	
SPP OTWG (1,2)	yes	
Mark Bennett; Gainesville Regional Utilities (5)	yes	

Question 5		
Commenter		**Comment**
Pepco Holdings (1)	yes	
John Bussman: AECI (1,5,6)	yes	
Roger McBeth; Northeast Utilities (1)	yes	
James Hinson; ERCOT (2)	yes	
FirstEnergy (1,3,5,6)	yes	
Alan Adamson; NYSRC (2)	yes	
Allen Klassen; Westar (1)	yes	

6. Do you agree with the list of training activity components provided in R7? If not, please explain in the comment area.

Summary Consideration:

The majority of the commenters did not agree with the list of training activity components presented in R7. Based on commenter feedback, the SPT SDT removed this requirement from the standard.

Several commenters expressed concern with the overlap between the standard's requirements and the NERC CEH program. The SPT SDT explained that the CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.

Question 6		
Commenter		**Comment**
Marion Lucas; Alcoa Power Generating, Inc (1)	no	Each company's admisnistrative and training functions are NOT a NERC resposiblity to dictate.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Ed Davis; Entergy Services (1)	no	We suggest R7 be deleted since it is overly prescriptive and should apply to the entity giving the training course, not the Responsible Entity of this standard. Responsible entities should keep records of the training of System Operators but should not be required to document the details of every course, especially if that course is developed by another entity and certified by some certification organization.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Dale Wadding; Dairyland Power Cooperative (5)	no	R7.9 and R7.10 are difficult to understand. Propose deleting both of these sub-requirements.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Southern Co (1,3,5,6)	no	We could agree, if under 7.10, that Req. 1.3 be removed as recommended in our earlier commments.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Santee Cooper (G2)	no	If the training is NERC Approved, the ILA for the training activity should be sufficient documentation.
Response: The SPT SDT has removed this requirement. The audit process requires entities to produce their evidence of compliance to any standard.		
CJ Ingersoll; CECD (3)	no	The training documentation does not need to be this extensive. As stated above, this type of documentation might be appropriate for a CEU program but should not be a requirement in this standard. Training records should be adequate to show the Type of Training, the Trainer, Date, and the Length of Time of the activitiy.

Question 6		
Commenter		**Comment**
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		
Tim Hattaway; Alabama Electric Coop (5)	no	The first six sub-requirements appear to be the items listed on a CEH learning activity application. R7.7, R7.8, R7.9, R7.10 are confusing and seem to be unmeasureable.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		
Richard Appel; Sunflower Electric Power Co (1,3,5)	no	This is unnessary and covered by the CEH application.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		
Ron Gunderson; NPPD (1)	no	The items list in R7 are typically outlined in skills or task-based training and are appropriate as a guideline, but appear to be too prescriptive. There are other valid training activities that wouldn't follow this format. This also needs to line up with the CEH program.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		
Duke Energy (G1) (1)	no	The items listed in Requirement 7 are appropriate as a guideline, but are too prescriptive. There are other valid training activities that do not match this format. This also needs to line up with the CEH program. Individual Learning Activity required by NERC for an approved continuing education hour has the requested information in this requirement.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		

Question 6		
Commenter		**Comment**
John Kerr; GRDA	no	This list is too repetitive and complicated. Again, this whould be a guide and not a standard.
Response: The SPT SDT has removed this requirement. The audit process already requires entities to produce their evidence of compliance to any standard.		
SPP OTWG (1,2)	no	This is a great list of activity components for the perfect program, but is not necessary for all activities and topics of training. These should be a part of a "Guide" provided as an attachment to the standard not a part of the standard as measured requirements. When some needs are discovered due to poor performance or lack of knowledge, the training may be done informally on the job by another qualified operator via assignment by a supervisor. Having this documentation for every training activity is not practical, but it is a good guide to strive for in formal training.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard. The activity you describe in your comment as informal training, the SPT SDT considers coaching or communicating. Documentation for coaching and communicating is not required for this standard.		
Jim Sorrels; AEP (1)	no	While this is a very good list of activity components, AEP believes that these components should be a part of a "Guide," provided as an attachment to the standard, and not be a part of the standard as measured requirements. When developmental needs are discovered due to poor performance or lack of knowledge, the training may be done informally on the job by another qualified operator via assignment by a supervisor. Retaining this documentation for every training activity is not practical, but it is a good goal to strive for in formal training.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard. The activity you describe in your comment as informal training, the SPT SDT considers coaching or communicating. Documentation for coaching and communicating is not required for this standard.		
Jim Gunnell; SPP (2)	no	I would like to see Training Provider Qualifications added to the list.
Response: The SPT SDT has removed R7.		
NPCC CP9 (1, 2)	no	NPCC participating members believe that it is unnecessary to be overly prescriptive in how the training is performed. This should be left to the discretion of the entity. The purpose is to produce system operators that meet a defined level of proficiency. If the operator can prove a level of proficiency, the training was successful.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their		

Question 6		
Commenter		**Comment**
evidence of compliance to any standard.		
Howard Rulf; WeEnergies (3,4,5)	no	A company can do this for internal training. For training from a NERC CE provider, whether instructor led, on-line, or video, R7.1 through R7.5 and R7.8 should be satisfied by supplying the NERC CE number for the class. Entities will still need to perform R7.6, R 7.7, R7.9, and R7.10.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Roger McBeth; Northeast Utilities (1)	no	This requirement is overly prescriptive for the documentation of each training activity. While most of these requirements should be covered, they may not necessarily be covered in the same document/location. R.7.1 - Title of the activity (Yes) Lesson Plan Cover Page/Attendance Form R.7.2 - Training Provider (Yes) CONVEX on Cover Page/Attendance Form R.7.3 - Description of the Content Covered by Activity - (Yes) Lesson Plan Outline R.7.4 - Classroom Lesson Plan, DTS Exercise (Yes) R.7.5 - Tool or References (Yes) References listed in Lesson Plan R.7.6 - Identification of Task or tasks covered (Yes) Task to Training Matrix not in Lesson Plan R.7.7 - Conditions under which tasks are performed are typically implied or part of the terminal objective. (Yes) R.7.8 - Identification of Prerequisite training; typically Not Applicable or defined as part of the training sequence for the Initial Training Program but not formally listed in any document except the Initial Training Qualification Guide. (Yes) R.7.9. - Objectives and assessments Objectives are part of every lesson plan (Yes) R.7.10 - Practice in following the steps and using the tools. (No) May be applicable for skill training during OJT or DTS but not for knowledge requirements covered in a classroom training activity. Overly prescriptive to specify practice in following steps and using the tools and references.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard. Note that on-the-job training method of delivery in this standard is not distinguished from any other method of delivery. All reliability-related training covered by this standard is subject to the requirements of this standard, regardless of the delivery method.		
Michael Scott; APS (1,5)	no	This R.7 section appears to be focused on the "I" of the ADDIE process, so I suggest combining sections R.6 and

Question 6		
Commenter		**Comment**
		R.7 for simplicity. Rather than take each of the 10 items individually, here's a suggestion: R6. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall conduct training that includes: R6.1 Training for new System Operators, as identified in B.R2. R6.2 Training for incumbent System Operators, as identified in B.R3. R6.3 Continuing education for incumbent System Operators, that includes training: • to correct identified performance gaps • based on analysis decisions • on new or revised tasks R6.4 Drills and/or simulations on tasks that have high reliability-related criticality and low frequency of occurrence shall be conducted. This training shall include: R6.4.1 At least 32 hours of emergency operations or system restoration training, simulating the system conditions, operating procedures, and communication processes. R6.4.2 At least one exercise each year involving other entities, including all real-time operating positions likely to be involved in the actual event. R6.5 Retention of course completion documentation, including the course title, provider, attendee name, completion date, and grade. R6.5.1 If the training is NERC Approved, a copy of the course certificate will be retained in the operator's training file (If the training has been approved by NERC, the learning objectives, course materials, evaluations, etc. are already archived.). R6.5.2 If the training provided is not NERC Approved, a copy of the course materials shall be retained, including learning objectives, lesson plan if applicable, and evaluation. R6.5.3 Training records shall be retained for three years.
Response: The SPT SDT has removed R7, as well as modified several other requirements. The audit process requires entities to produce their evidence of compliance to any standard.		
Jason Shaver; ATC (1)	no	ATC does not agree with the requirements in R7 nor its sub-requirements. (R7.1 – 7.10) Again the SDT has ignored the reality of NERC CE Program requirements in writing this standard. ATC recommends that Requirement 7 be deleted along

Question 6		
Commenter		**Comment**
		with its sub-requirements. At a minimum, an exception for collecting and reporting this data should be made for those programs that have been previously approved by NERC as part of their CE Program.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		
FPL (1,3,5)	no	This requirement is overly prescriptive and is inappropriate for this Reliability standard. The format is a good tool for development. We support its use as it also provides consistency with the NERC CE process, but again, it does not belong in a requirement. All of requirement R7 should be deleted.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
FRCC SO Subcommittee (1,2,5)	no	This requirement is overly prescriptive and is inappropriate for this Reliability standard. The format is a good tool for development. We support its use as it also provides consistency with the NERC CE process, but again, it does not belong in a requirement. It sends the wrong signal to the industry, one where compliance should focus on the specific details of individual training activities and away from overall quality of an organizations training initiatives. All of requirement R7 should be deleted.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
WECC OTS (1,2)	no	R7 lists documentation required for each "learning activity" used to support its reliability related training. The OTS does not support the requirements listed in R7 and instead suggests following the principles contained with the NERC Continuing Education Program for developing a valid learning activity. These items include: Learning objectives Training content or materials Identify delivery method and qualifications of instructors Learning assessment to assure the learning objectives have been achieved Evaluation of the learning activity Review and update The list in R7 includes several additional documentation requirements that are not beneficial to assuring quality

Question 6		
Commenter		**Comment**
		learning activities. While OTS recognizes the NERC CE Program is independent of a Reliability Standard, the documentation requirements for non-NERC CE-approved learning activity should not exceed the well defined items listed for the CE Program.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Allan George; Sunflower (1)	no	R.7.1. ,R.7.2., R.7.3., R.7.6., R.7.9., R.7.10., ARE ADEQUATE
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Richard Krajewski; Public Service Co of NM (1)	no	R7 lists documentation required for each "learning activity" used to support its reliability related training. PNM does not support the requirements listed in R7 and instead suggests following the principles contained with the NERC Continuing Education Program for developing a valid learning activity
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Brian Tuck; BPA (1)	no	R7 lists documentation requirements for each "learning activity" used to support reliability related training. BPA does not support the requirements listed. BPA suggests following the documentation principles described in the NERC Continuing Education Program. These items include: Learning Objectives Training Content and Materials Delivery Method and Qualifications of Instructors Learning Assessment to assure the learning objectives have been achieved Evaluation of the learning activity Review and update Requirements R7.6 - R7.9 are references to the tasks determined in the JTA that the learning activity is designed to cover. By complying with R7.6, the entity has made the link to the task analysis. The remaining items (R7.7-R7.9) are not beneficial to assuring quality learning activities. BPA recommends that items R7.7-R7.9 be removed. It is not clear whether requirement R7.10 is asking for special documentation of a component of a learning activity, or if it is listing additional requirements for learning activity content. This requirement is not beneficial to assuring quality learning activities, and should be removed.

Question 6		
Commenter		**Comment**
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Gordon Rawlings; BCTC (1)	no	BCTC generally supports the list in R7 as a good record of training. We note that the list is similar to the data required for learning activities to be approved by the NERC Continuing Education Program. The "NO" response is due to the following we believe are not necessary or beneficial: R7.7 "Identification of the conditions under which the associated task is performed (as identified in R1.1.)." As mentioned in Question #1, BCTC does not support identification of the conditions when a task is performed. Most tasks need to be performed under many conditions. R7.9 "Objectives and assessments that duplicate the criteria for successful performance identified in R1.7. and mastery of the knowledge and skills in R1.6." As mentioned in Question #1, separately identifying the criteria for successful performance of the task is not necessary. Successful "performance criteria" is usually executing the skills and knowledge necessary to do the task resulting in the desired outcome, essentially doing the task without mistakes. Additionally, many topics in operator training don't support the concept that an operator can demonstrate performance of the task at the end of the learning activity. The task likely can't be performed until an operating condition on the system calls for the task to be performed, which may be days or weeks after the training took place. A "performance criteria" can be a general operating philosophy such as safe and error free operating of the system. We don't believe it is required to add performance critiera to "every task" performed. R7.10 As mentioned in Question #1, BCTC does not support including this in the Standard. Many tasks need to be performed either "alone or as part of a team" depending on normal operating or emergency conditions at the time. Whether a task is generally performed individually or as a team is a fundamental part of identifying the task and does need a separate reference in the standard.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Michael Clime; Ameren	no	The JTA and Needs Assesment should be used to develop the Training Activity. Other than the Title, Objectives, prerequisites, and a method for assessing the accomplishment of the objectives, the rest can be

Question 6		
Commenter		**Comment**
		eliminated.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Dan Kay; South Mississippi EPA (4)	no	This should be the left to the employer, not required by NERC in a standard.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Alan Adamson; NYSRC (2)	no	How the training is performed should be at the discretion of the entity. The purpose is to produce system operators that meet a defined level of proficency. If the operator can prove a level of proficiency the training was successful.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Allen Klassen; Westar (1)	no	This requires a huge amount of documentation (which doesn't make better training), Are you trying to sell software with this Standard?. To be specific, R7.6 requires identifying task from R1, then R7.7, R7.9 and R7.10 all require documentation of information already documented in R1 in association with the task(s) listed for R7.6, one circular reference should be enough.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
John Bussman:AECI (1,5,6)	Yes/no	Partly I do not agree with section concerning R1.1 to R.1.7
Response: The SPT SDT revised the Requirement 1 such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Ron Falsetti; IESO (2)	Yes/no	This is a good list for inclusion in the training manual. However, many of them are a repeat of R1's and as such, can be combined with those listed in R1.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Robert Coish; MEHB (1, 3, 5, 6) MISO (1,6)	yes/no	The items list in R7 are typically outlined in skills or task-based training and are appropriate as a guideline, but appear to be too prescriptive. There are other valid training activities that wouldn't follow this format. This also needs to line up with the CEH program.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not		

Question 6		
Commenter		**Comment**
just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		
Matthew Santos; SDE&G	Yes/no	Is this going to be a required form from NERC stating as you have it in R7? (The JTA is driving the training program, everything has been identified) Could you explain why this would be needed for each activity/task and how it would help me?
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Kathleen Goodman; ISO-NE (2) PJM (2) ISO/RTO Council (2)	Yes/no	If the question is "Do you agree that the list in R7 is useful in any Training Program?" then ISO New England (PJM) agrees that the items in the list are useful. If the question is "Do you agree that NERC mandate each item in the R7 list in order to have a valid Training Program?" ISO New England (PJM) does not agree that there is any basis for mandating those requirements. The proposed set may be a good set but it is not justified as the only set.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
SCE&G ERO WG (1, 3, 5)	yes	What does the word "mastery" in this context mean? Are we saying anything less than a perfect score does not meet this requirement or is "proficient" a better word choice.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard. Mastery is a common training industry term used to indicate satisfactory performance of a task.		
Brian Thumm; ITC (1)	yes	There may be times when not all of the items are applicable to a particular activity. NERC should ensure that "Not Applicable" is an appropriate response when documenting training activity components. Otherwise, the list of training activity components should be a guideline for what to include in the analysis, and not a prescriptive list of components as currently written in the standard.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Will Franklin; Entergy (6)	yes	Again, the requirements for documentation are too are stringent. The way this is written, it appears that any reliability based training must essentially meet NERC CE requirements.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not		

Question 6		
Commenter		**Comment**
just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements. This standard does not require that reliability-related training be approved by the CE Program.		
Hydro One Networks (1)	yes	In general, these should be documented but there may be some training activities where not all of the items in R7.1 through R7.10 are applicable. Also, the associated training should include "Learning Objectives."
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
MRO (1,2)	yes	The industry should have a standard template to assist industry trainers to meet all the requirements listed in R7.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
Mark Bennett; Gainesville Regional Utilities (5)	yes	I believe this needs to be completely eliminated the way it is written.What is needed is th student name, the "task' completion date.
Response: The SPT SDT has removed R7. The audit process requires entities to produce their evidence of compliance to any standard.		
TVA (1)	yes	
Michael Gammon; KCP&L (1)	yes	
WECC RCCWG (1,2)	yes	
Pepco Holdings (1)	yes	
SRP (1)	yes	
Gerald LaRose; NYPA (1)	yes	
James Hinson; ERCOT (2)	yes	
FirstEnergy (1,3,5,6)	yes	
William J. Smith; Allegheny Power (1)	yes	

7. Do you think that every Reliability Coordinator, Balancing Authority, and Transmission Operator should use either a generic or a company-specific simulator for some drills and exercises? (Note that one of the Blackout Recommendations was that a full-scale simulator should be made available to provide operator training personnel with "hands-on" experience in dealing with possible emergency or other system conditions.) If not, please explain in the comment area.

Summary Consideration:
Most commenters stated the use of a simulator enhanced or improved the simulation experience of the operator. However, some felt that these tools were too time consuming and difficult to operate and maintain to make them valuable at this time as a training tool. Overall the majority of commenters felt that the requirement to provide a generic or company-specific simulator was too prescriptive. The next largest number of commenters felt that the requirement of a simulator was too expensive. Several expressed concerns about the value of requiring a simulator for non-complex systems. One suggested rolling the whole standard into PER-002 and PER-004. One commentator expressed concern about the ability to schedule enough regional drills in a year to cover all operating personnel and suggested a three year window to accomplish this requirement. One commenter expressed concern that generic simulators are not "realistic" and therefore do not reinforce the training and may actually detract from it. Two commenters stated that generic simulators were okay. One commenter stated that a company should be allowed to work with vendors or other sources for simulator time.

The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).

Question 7		
Commenter		**Comment**
FRCC SO Subcommittee (1,2,5)	no	Simulators can be a critical and effective training tool. The problem with mandating their use is that some systems are not complex enough to warrant (technically or economically) the use of simulators for training their respective operators and the current applicability criteria of the standards process do not allow for flexibility of appropriate exemptions. We would also suggest that PER-002 and PER-004 remain in-place to provide the industry the flexibility and granularity that is appropriate to differentiate requirements for Reliability Coordinators (very complex) and BAs and TOPs, which in some cases may not be very complex systems (see overall comment below on question #15). We would suggest that the enhancements provided by the current draft of PER-005 be "rolled" into the content of PER-002 and PER-004.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
FPL (1,3,5)	no	Simulators can be a critical and effective training tool. The problem with mandating their use is that some systems are not complex enough to warrant (technically or economically) the use of simulators for training their respective operators and the current applicability criteria of the standards process do not allow for flexibility of appropriate exemptions.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain		

Question 7		
Commenter		**Comment**
entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Ed Davis; Entergy Services (1)	no	The use of a simulator is helpful and a great tool for training but not necessary, especially for small responsible entities, and should be deleted.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Santee Cooper (G2)	no	It should not be part of the standard that every company utilize a company-specific simulator. The wording "the use of drills and simulations" is fine.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
John Kerr; GRDA	no	Affordable, effective, and reliable simulation technology does not yet exist. This could be a financial burden on small entities. Table top drills at this time are more effective.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Allan George; Sunflower (1)	no	Not every RC, BA, or TO, needs or can afford a simulator. The current requirements include simiulator hours so to maintain certification operators seek training facilities that provide them.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).The current certification requirements include simulation hours not simulator hours.		
Gerald LaRose; NYPA (1)	no	While desirable, such a simulator tool may be prohibitively expensive to procure and maintain and update. "Lessons Learned", tabletop drills and functional exercises are acceptible alternatives that accomplish the same goals. Re 6.5.2: It is extremely difficult to schedule enough such inter-entity drills to be able to capture each Operator's participation on an annual basis given shift requirements, etc. A three-year per-Operator participation requirement, equivalent to an Audit span, is more readily accomplishable.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).The SPT SDT has removed R6.		
Dan Kay; South Mississippi EPA (4)	no	This should be the left to the employer, not required by NERC in a standard.

Question 7		
Commenter		**Comment**
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Allen Klassen; Westar (1)	no	Although I fully support the use of GOOD simulators, requiring the use of a simulator would force many entities to use the generic simulators which are not necessarily a benefit over a well-designed exercise. Many of the generic simulators are not "realistic" and therefore do not reinforce the training and may actually detract from it.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Brian Thumm; ITC (1)	no	The training standard should ensure that operator training is effective in producing knowledgeable system operators, and should not be prescriptive in the manner that the training is delivered. Simulations are more than just computer-based training sessions, or those performed in a dedicated control-room environment for the purpose of simulation training. Simulation can be non-computerized training sessions, and can be comprised of table-top drills, discussions, etc.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Tim Hattaway; Alabama Electric Coop (5)	no	The financial burden could be too great for smaller entities by requiring company specific simulators.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
CJ Ingersoll; CECD (3)	no	Individual trainings programs should be able to allocate resources as they deem necessary and beneficial to their specific organization.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Marion Lucas; Alcoa Power Generating, Inc (1)	no	Mandating that a training simulator drill is a REQUIREMENT would force small companies and/or those that have little or no impact on reliability of the Interconnection to incu un-warranted expense and could not pass a cost-benefit analysis by any reasonable person.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		

Question 7		
Commenter		**Comment**
Gordon Rawlings; BCTC (1)	no	BCTC has simulator that models our system but we also recognize the benefits associated with other computer-based simulators whether generic or company specific. We have also used table to exercises and simulated events, not using the company simulator that have been as effective in training. BCTC does not support including this as a requirement in the Standard. Effective "simulation" of either normal operation or an emergency event is the goal and can be accomplished through many different methods of simulation.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Dale Wadding; Dairyland Power Cooperative (5)	no	Although we use a simulator and feel that it is a useful tool, use of a simulator would be an unnecessary and/or unreasonable requirement for some entities. If the generic EPRI OTS or similar simulator was less problematic to install and use, it would be easier to agree with such a requirement.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Hydro One Networks (1)	no	The use of a company-specific simulator for training is an asset. However, time spent using "generic" simulators may be better spent specifically reviewing one's own system restoration requirements via table top exercises, group activities, drills, discussion, facilitated restoration plan sessions, etc.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Southern Co (1,3,5,6)	no	The benefit gained from required use of a simulator is difficult to quantify. Table-top exercises and drills can be just as effective at a significiantly reduced cost.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Pepco Holdings (1)	no	A simulator is not necessary and goes farther than that required for either annual training emergency or otherwise or for exercises within other types of training. There are other ways of including simulations in operator training.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		

Question 7		
Commenter		**Comment**
Richard Appel; Sunflower Electric Power Co (1,3,5)	no	This would be great,but in the real world simulators are just to expensive except for the larger utilities and not available for everyone.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Michael Scott; APS (1,5)	no	Owning and maintaining a "simulator" may financially unfeasible for some entities. All entities can participate in "simulations", though, including tabletop drills, etc.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
WECC OTS (1,2)	no	As a group of trainers, OTS recognizes the benefits associated with a computer-based simulator whether generic or company specific. However, OTS does not support including this as a requirement in the Standard. Effective "simulation" of either normal operation or an emergency event is the goal and can be accomplished through other methods of simulation.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Mark Bennett; Gainesville Regional Utilities (5)	no	Again depending on the size of the system and how the loss of said system could affect the bulk electric system I am not sure that simulstion is needed. I agree that there are certain benefits derived from observing an individual systems configuration and flows during different contingencies.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Richard Krajewski; Public Service Co of NM (1)	no	PNM recognizes the benefits associated with a computer-based simulator and uses both generic and company specific. However, PNM does not support including this as a requirement in the Standard. Effective "simulation" of either normal operation or an emergency event is the goal and can be and is accomplished through other methods of simulation at PNM.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
SPP OTWG (1,2)	no	This is good practice, but it may not be practical for every company to have a simulator that reflects the company's actual system. Simlulated practice can be sufficient for

Question 7		
Commenter		**Comment**
		many entities.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Jason Shaver; ATC (1)	no	ATC does not believe that this is the correct place to insert any drill exercises requirements. Any additional training requirement that NERC wants to place on certified operators should be made under the certification arm of NERC not through the standards process.
Response: This training standard is independent of the NERC certification requirements.		
TVA (1)	no	We do agree that the use of a simulator is the best way to practice drills and exercises, but we also believe that utilities should have the flexiblity to use other means (e.g. tabletop) to train and practice skills….especially very small utilities that may not be able to afford a simulator.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities. At this time, the drafting team is not clear about the meaning of "control over a significant portion of load and generation" (§1393).		
Michael Gammon; KCP&L (1)	no	A simulated activity does not have to be dependent on a training simulator. There are table-top exercises and drills sufficient to meet training needs. In fact, many parts of an emergency exercise do not require the use of a simulator (e.g. field personnel at various locations to perform specific field tasks).
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
SCE&G ERO WG (1, 3, 5)	no	It should not be part of the standard to require every company to use company-specific simulation for some drills. It should be left to the company to determine how it is most practical to meet the language "use of drills and simulation."
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
ISO/RTO Council (2)	no	The IRC agrees that simulators can be valuable training tools The IRC does not support requirements that mandate "How to" carry out a given standard. Although the IRC supports the use of near-real time Operating Training simulators, the IRC recognizes a simulator is not a necessary tool for conducting valid exercises.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and		

Question 7		
Commenter		**Comment**
generation" (§ 1393).		
PJM (2)	no	PJM does not support requirements that mandate "How to" carry out a given standard. Although PJM does support the use of near-real time Operating Training simulators, PJM also recognizes a simulator is not a necessary tool for conducting valid excercises. A veteran trainer can accomplish higher quality and more relevant training by way of a well designed and executed table top exercise rather than a "generic" simulator or even a system specific OTS which is not kept current with the real time system. An OTS/DTS simulator is a tool for training rather than the training itself.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Kathleen Goodman; ISO-NE (2)	no	ISO New England does not support requirements that mandate "How to" carry out a given standard. Although ISO New England supports the use of near-real time Operating Training simulators and in fact has a fully functioning simulator, we recognize a simulator is not a necessary tool for conducting valid excercises.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
SRP (1) WECC RCCWG (1,2)	no	Partially agree. R6.5.1 needs to state "generic" simulator. Since most entities do not have simulators for their own systems, the generic simulator needs to be an option for this emergency training.
Response: The requirement does not require the use of simulators. It requires the use of "realistic drills and/or simulation".		
Ron Gunderson; NPPD (1)	Yes/no	Your question asks about the simulator's use during drills and exercizes. We agree that all certified operators should have some simulation based training (it could be a generic simulator). While nice to use a simulator during excerises, the drill should not be a slave to the tool. For example, very productive restoration excercises can be done without all participants simultaneiously using simulator. There are other very imporant aspects of drills (testing procedures and communications).
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Matthew Santos; SDE&G	Yes/no	Generic works for the concepts, system specific does the same but also gives the real flavor. This should not be made to be mandatory, table top drills do work and provide

Question 7		
Commenter		**Comment**
		the concepts.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Michael Clime; Ameren	yes	I think table top paper type drills are pretty much a waste of time. However requiring everyone to have a company specific simulator is unrealistic. It pretty much takes one full time person to maintain a simulator, updating databases and making new scenarios and testing them. Also company specific simulators are expensive. I think that some very good concepts can be taught on a generic simulator, such as restoration concepts, voltage collapse, Ferantti rise, operating islands, synchronizing, etc;.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
MRO (1,2)	yes	The MRO believes that user friendly simulators should be made available to the applicable entities, it does not believe that these entities should be required to have these simulators on site.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Will Franklin; Entergy (6)	yes	This is idealistic. Of course the use of a simulator has benefits. The ability for entities to access a simulator may be cost prohibitive. Until the system operator training program matures, hands on simulation should be desired but table top exercises should be acceptable to meet simulation requirements. Some entities may have only a few specific reliability tasks, thus obtaining a simulator just for those few tasks may be impractical.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
John Bussman:AECI (1,5,6)	yes	However, NERC needs to allow a company to be able to work with vendors or other sources for simulator time in the entity does not have a company - specific simulator.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
MISO (1,6)	Yes/no	Your question asks about the simulator's use during drills and exercizes. We agree that all certified operators should have some simulation based training (it could be a generic simulator). While nice to use a simulator during excerises, the drill should not be a slave to the tool. For example,

Question 7		
Commenter		**Comment**
		very productive restoration excercises can be done without all participants simultaneously using a simulator. There are other very imporant aspects of drills (testing procedures, plans and communications).
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
NPCC CP9 (1, 2)	Yes/no	Although NPCC participating members believe that a simulator holds great value in conducting operator training, it is not an absolute necessity. Many smaller entities have expressed concern that the cost of a simulator is excessive and depending on the size of their area may have the appropriate cost-benefit ratio. Valid training exercises may be conducted effectively without it.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Jim Sorrels; AEP (1)	yes	A simulator that reflects the operator's actual system is the best and is preferred over generic simulators. However, the use of generic simulators have benefits and should not be excluded. The use of simulators should not be exclusive of table top exercises as they too can prove to be very helpful.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Howard Rulf; WeEnergies (3,4,5)	yes	As long as this can also be satisfied by using a generic simulator such as the EPRI OTS.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
Roger McBeth; Northeast Utilities (1)	yes	Since the skills and knowledge of several of the operator's critical tasks can not be adequately covered in a table top exercise, classroom discussion, or OJT, a company specific-simulator should be used for operator training. Unfortunately the vendors that provide system operator simulators are not well designed and require excessive support for scenario development and maintenance. The EPRI OTS Simulator may be the most cost efficient option for small training organizations. It can be made company specific to meet an organization's needs but will not provide the same user interface as a site specific training simulator.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		

Question 7		
Commenter		**Comment**
Duke Energy (G1) (1)	yes	Yes, the key word being *some*. certified operators should have some simulation based training (generic or specific simulator), but training activities should not rely on any one tool or method exclusively.
Response: The SPT SDT has considered FERC Order 693, requiring the use of simulators for certain entities and is seeking clarification on the meaning of "control over a significant portion of load and generation" (§ 1393).		
William J. Smith; Allegheny Power (1)	Yes	
Jim Gunnell; SPP (2)	Yes	
Ron Falsetti; IESO (2)	Yes	
James Hinson; ERCOT (2)	Yes	
FirstEnergy (1,3,5,6)	Yes	
Alan Adamson; NYSRC (2)	Yes	
Brian Tuck; BPA (1)	Yes	
Robert Coish; MEHB (1, 3, 5, 6)	Yes	
Edward J. Carmen; Baltimore Gas & Electric (1)	Yes	

8. Do you agree that there should be a record of each System Operator's training that shows the tasks that System Operator has already mastered and the tasks where performance needs improvement? (R8.)

Summary Consideration:

Overall the commenters felt that R8 was too burdensome or prescriptive. In general, the commenters that had concerns about the recommended training records agreed that records be generated, but not rating records. Some cited the shear number of tasks involved as justification for concern about this requirement being burdensome. One suggested records be kept by exception rather than requiring including all tasks mastered. Many pointed to the CEH program as justification for eliminating this requirement from the standard. Some pointed to the supervisory evaluation process as the appropriate place for managing performance issues. In response to commenters concerns, the drafting team has removed this requirement.

Based on stakeholder comments, the SPT SDT removed this requirement.

Question 8		
Commenter		**Comment**
Tim Hattaway; Alabama Electric Coop (5)		CEH program requires all approved system operator training to be recorded.
Response: The SPT SDT does not have enough detail to respond to the comment.		
SPP OTWG (1,2)	No	This question does not match R8. The standards should require training records, but not rating records.
Response: The SPT SDT agrees that there may be a misalignment between the question and the requirement and will strive to align the requirements and the questions moving forward. The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Allan George; Sunflower (1)	No	It is not really necessary, CEH record keeping is adequate.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		
WECC RCCWG (1,2)	no	This requirement forces entities to maintain two separate training programs for each operator. One program for CEH's and maintaining the NERC Certification and another independent program to meet the R8 requirement. This is unnecessary. Entities should be self compliant in determining operators performance without subjecting them to the documentation of R8.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements. Evidence of compliance to a NERC standard is a requirement of a NERC standard and compliance		

Question 8		
Commenter		**Comment**
processes.		
Jason Shaver; ATC (1)	no	Although ATC agrees with the question as posed above, this is not consistent with the way the proposed standard is written; "should" versus "shall." In addition, if an entity is required to document this information, the entity should be allowed to view the completed CE course information in regard to their employees in the NERC database once implemented. Currently, NERC has restricted access of this information to the individual alone. Apart from having this flexibility, this requirement is duplicative and increases the administrative burden on the industry without enhancing system reliability or leading to more educated system operators. Why make an employer report the same information that NERC already has available to a large extent via its CE Program?
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		
Dan Kay; South Mississippi EPA (4)	no	This should be the left to the employer, not required by NERC in a standard.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
TVA (1)	no	We agree with the first part of the sentence that states that there should be a record of the operator's qualifications, but do not agree that there be a continuous process of evaluation for the purpose of new training plan development. If there is a developmental problem, it will be handled within the organization's Performance Management Process. Overall performance improvement is addressed at the function level in the Continued Training process.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Santee Cooper (G2)	no	Evaluations by supervision and management would identify areas that need improvement. Once an operator becomes a system operator they should be at a certain level of competency such that individualized training is not needed. Too much individualized training may be an indication of a poor performing operator that is not compatible with the job.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is		

Question 8		
Commenter		**Comment**
included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Ed Davis; Entergy Services (1)	No	We believe responsible entities should keep records concerning the development of each system operator. However, we think that it is not necessary to specify that in a reliability standard for the BES. Please see our suggested changes contained our response to Question 19 in this document, including our conerns regarding Sytsem Operators under contract or System Operators performing tasks identified in R1 under delegation agreement.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task. The SPT SDT has significantly revised the standard based on industry feedback. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. Based on stakeholder feedback the standard has been reworded such that the successful performance is determined using the systematic approach to training by the entity.		
Marion Lucas; Alcoa Power Generating, Inc (1)	No	This is truly a salary review/administration function and is NOT something NERC should be involved in.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
CJ Ingersoll; CECD (3)	No	Documentation should be by exception, reflecting only performance improvement needs, considering that there are already going to be records in place indicating the training that has been completed per R.7.
Response: The SPT SDT has removed R7 from the revised standard and has revised this requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Mark Bennett; Gainesville Regional Utilities (5)	no	Either they are competent or not. If they don't they need to do it again.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Richard Krajewski; Public Service Co of NM (1)	no	PNM supports keeping a training record for each operator but does not support a separate record listing all the tasks identified in the job task analysis and whether the operator has "mastered" that individual task or still "needs improvement" because it is a more detailed record keeping

Question 8		
Commenter		**Comment**
		than is needed. PNM does not agree that there is benefit to add performance critiera to "every task" performed.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task. The revised standard does not include a requirement to perform a job task analysis.		
Roger McBeth; Northeast Utilities (1)	no	With a typical task list of over 300 tasks this would be an administrative burden that will require organizations to purchase a complex Learning Management System. Typically Learning Management System reporting will provide reports for completion of Training Activities not tasks. A Learning Management Systems will track Training Activities (Classroom Lesson Plans, OJT Guides, Table Top Exercises, Simulator Scenarios, etc) and those training activities should be tied to the tasks covered by the learning activity.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Southern Co (1,3,5,6)	no	While we agree training records should be maintained, the criteria defined for "each" task identified in the JTA would be overly burdensome. The current Reliability Exam identifies 203 operator tasks. The focus should be on the performance gaps or developmental needs identified in the gap analysis. This is not what the document states. This needs to be clarified. We do not need to track every task of every operator in the JTA. Perhaps the training records is best contained in the employee's performance appraisals under accomplishments (tasks mastered) and developmental needs (tasks needing improvement).
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task. The revised standard does not include a requirement to perform a job task analysis.		
Michael Scott; APS (1,5)	no	As mentioned earlier on question 2, a one-time assessment of an incumbent operator's training needs, in relation to a newly designed training program is appropriate. After the operator meets these needs, the SAT process includes feedback measures that identify opportunities for performance improvement. Continuously evaluating each and every qualified operator against a catalog of tasks in order to repeatedly design a unique, customized annual training plan adds an additional layer of administrative burden that would be cumbersome, expensive, and ineffective. We recommend dropping R8 in its entirety.

Question 8		
Commenter		**Comment**
Response: The SPT SDT agrees with your statement that the SAT process includes feedback measures that identify opportunities for performance improvement. The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task. R4, the requirement for maintaining an annual training plan, has been removed from the revised standard.		
Will Franklin; Entergy (6)	no	Documentation should be required, but as long as the training program covers demonstrating the skill requirement and keeping records of who has completed the task, then maintaining a record of task completion for every individual is excessively burdensome.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Michael Clime; Ameren	no	In the heirarchy of training, tasks are at the very bottom. It would be almost impossible to try and track each task for each Operator.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task		
SRP (1)	no	This implies that an annual assessment of job task mastery would be conducted. Then you would be requiring records of training delivered to fill performance gaps from that annual assessment. In theory, these records would have to be exclusive of your training records that keep track of when a class can be retaken for credential maintenance, which is not annually. You would be chasing two separate and unequal targets: performance based training versus time sensitive credential maintenance education. One supports reliability. The other looks good on paper. Doing both simultaneously is an administrative nightmare. This requirement forces entities to administer two separate training programs for each operator. One program for CEH's and maintaining NERC Certification and another independent program to meet the R8 requirement. This is unnecessary. Entities should be self compliant in determining operators performance without subjecting them to the documentation of R8.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		
Jim Sorrels; AEP (1)	no	AEP believes that there should not be a record specific to tasks needing performance improvement, but rather should be evaluated at the group level. Training issues are best

Question 8		
Commenter		**Comment**
		identified by group and training provided to the group. To the extent that individual performance issues occur, this becomes an individual job performance concern that is addressed through various human resource management approaches. Documentation for each task as specified by R8 would require extensive data entry into an LMS, in addition to the documentation needed to provide before entering data into an LMS. Another factor to consider is enabling the LMS to accept/accommodate such documentation for view by administrators and operators. The implementation schedule would need to be reconsidered if these types of changes are necessary in the LMS system.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
John Kerr; GRDA	no	This could be complicated and time comsuming. Delete R8.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Allen Klassen; Westar (1)	no	I agree with the items in R8 but not with what this question asks.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Brian Tuck; BPA (1)	no	BPA supports keeping a training record for each system operator, but finds the record-keeping requirements described in R8.1 and R8.2 to be unnecessarily detailed. The performance assessment criteria and duration of learning activity described in 8.1 and 8.2 are captured in the learning activity documentation and assessment of meeting learning objectives. Separately identifying these items here is unnecessary. BPA suggests that a training record which consists of a historical record of the annual training plan and the dates that training activities were successfully completed would be an adequate record for tracking progress toward meeting competency requirements of the assigned job.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Matthew Santos; SDE&G	Yes/no	We always want to track an Operator's progress. Take Operators off shift and test them in reliability related tasks to see if there performance meets the criteria. If the training plan is based on the JTA this is already being done in initial

Question 8		
Commenter		**Comment**
		training, refresher training. This is more of a question not R8. The tracking of a Operator training should include how well they did on exams, how frequently this training has been repeated, any follow up done and what other training he is due for, etc.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task. The requirement to perform a job task analysis has been removed from the revised standard. The SPT SDT agrees with your proposed list of tracking methods, however, believes they are too prescriptive to be included in the standard.		
WECC OTS (1,2)	Yes/no	The question asks if a record of each operators training that shows the tasks mastered and the tasks where performance needs improvement. This is somewhat different than the requirements listed in R8 which seem to deal with meeting performance criteria. OTS supports keeping a training record for each operator but does not support the following: 1. A separate record listing all the tasks identified in the job task analysis and whether the operator has "mastered" that individual task or still "needs improvement" is more detailed recording keeping than is needed. The training program and annual training plan for each operator is designed to fill identified gaps in an operator's skill and knowledge needed to accomplish the tasks, thus the concept is addressed in designing the training plan rather than requiring a separate list of the operator's standing with the tasks. 2. Section R8 seems to focus on documenting how the "performance critiera" is met. It indicates appliable entities must track their operator's progress in using training to obtain the knowledge, skill and experience needed to "meet the performance criteria specified in R1.7. for the tasks identified in R1." As OTS has previously mentioned, we fully support a learning assessment at the end of each learning activity to determine if the learning objectives were met for the activity. Successful "performance criteria" is usually executing the skills and knowledge necessary to do the task correctly and in the right timeframe resulting in the desired outcome, essentially doing the task without mistakes. Many topics in operator training do not support the concept that an operator can demonstrate "performance" of the task at the end of the learning activity. Many tasks cannot be performed until an operating condition on the system calls for the task to be performed, which may be days or weeks after the training took place. A "performance criteria" can be a general operating philosophy such as safe and error free operating of the system, but it will be a burden and does not provide and benefit to add performance critiera to "every task" performed.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is		

Question 8		
Commenter		**Comment**
included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task. The requirement to perform a job task analysis has been removed from the revised standard, including R1.7.		
ISO/RTO Council (2) PJM (2) Kathleen Goodman; ISO-NE (2)	Yes/no	The IRC (PJM) (ISO-NE) agrees that a training results tracking system is a valid Training task, but questions whether or not this task rises to the level of a NERC standard. Note: Question 8 refers to Requirement 8. However, Question 8 asks a question (relating to documenting operator needs) that is not part of Requirement 8 (relating to training only)
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task. The SPT SDT agrees that there may be a misalignment between the question and the requirement and will strive to align the requirements and the questions moving forward.		
MISO (1,6) Ron Gunderson; NPPD (1)	Yes/no	We agree with "should", but R8 says "shall" and identifies it as a medium risk requirement. The design of an item in a training program (or lack thereof), does not put the Interconnection at risk of cascading.
Response: The SPT SDT agrees that there may be a misalignment between the question and the requirement and will strive to align the requirements and the questions moving forward. The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Michael Gammon; KCP&L (1)	yes	I think the reference in R8.2 should be for training identified under R4. R7 seems to be the information needed for tracking and R8 is the requirement for tracking.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task. R7 has been removed from the revised standard.		
Alan Adamson; NYSRC (2)	Yes/no	The entity should have records showing the system operators have either mastered a proficency or have not.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
NPCC CP9 (1, 2)	Yes/no	The entity should have records showing the system operators have either mastered a proficency or have not but does this rise to the level of importance that it needs to be stated in a NERC-ERO Reliability Standard? This type of information will be maintained in a normal "course of business" and doesn't need to be specified here.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is		

Question 8		
Commenter		**Comment**
included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Gordon Rawlings; BCTC (1)	Yes/no	The question asks if a record of each operators training that shows the tasks mastered and the tasks where performance needs improvement. This is somewhat different than the requirements listed in R8 which seem to deal with meeting performance criteria. We caution that the administrative work already involved with Certifcation, Continuing Education along with external and internal training has grown by 10 fold in the past 3 - 4 years. BCTC supports keeping a training record for each operator but does not support the following: 1. A separate record listing all the tasks identified in the job task analysis and whether the operator has "mastered" that individual task or still "needs improvement" is more detailed recording keeping than is needed. The training program and annual training plan for each operator is designed to fill identified gaps in an operator's skill and knowledge needed to accomplish the tasks, thus the concept is addressed in designing the training plan rather than requiring a separate list of the operator's standing with the tasks. 2. Section R8 seems to focus on documenting how the "performance critiera" is met. It indicates appliable entities must track their operator's progress in using training to obtain the knowledge, skill and experience needed to "meet the performance criteria specified in R1.7. for the tasks identified in R1." BCTC supports a learning assessment at the end of each learning activity to determine if the training objectives were met for the class. Separately identifying the criteria for successful "performance" of the task is unnecessary. Successful "performance criteria" is usually executing the skills and knowledge necessary to do the task resulting in the desired outcome, essentially doing the task without mistakes. Additionally, many topics in operator training don't support the concept that an operator can perform the task at the end of the learning activity. The task likely can't be performed until an operating condition on the system calls for the task to be performed, which may be days or weeks after the training took place. A "performance criteria" can be an operating philosophy such as safe and error free operation of the system but it will be unbenficially burdensome to add performance critiera to "every task" performed.
Response: The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements. The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task. The requirement to perform a job task analysis,		

Question 8		
Commenter		**Comment**
including R1.7 addressing performance criteria, has been removed from the revised standard.		
Duke Energy (G1) (1)	yes	These requirements are being done as part of the Continuing Education program. Individual Learning Activity required by NERC for an approved continuing education hour has the requested information in this requirement. Why not have a single requirement simply to adhere to the Continuing Education program?
Response: The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		
Richard Appel; Sunflower Electric Power Co (1,3,5)	yes	This is already covered by requiring operatore to have CEH's.
Response: The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		
SCE&G ERO WG (1, 3, 5)	yes	What does the word "mastery" in this context mean? Are we saying anything less than a perfect score meets this requirement or is "proficient" a better word choice.
Response: The SPT SDT has removed the word "mastery" from the revised standard.		
John Bussman:AECI (1,5,6)	yes	We think there should be system operator training records. However, not necessarily in the way stated
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
William J. Smith; Allegheny Power (1)	yes	This should apply to entry-level or newly-hired experienced system operator only.
Response: The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Jim Gunnell; SPP (2)	yes	I'll reiterate the importance of having an assessment tool or tools that can clearly assess "mastery". This should be a rubric or assessment with levels of competency. The more granular, the better. If we rely on a simple checklist, we'll look back to discover an overabundance of Master Operators, which could reflect a false sense of competency across the industry.
Response: The word "mastery" has been removed from the revised standard. The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
James Hinson; ERCOT (2)	yes	How would we designate mastering a skill versus just attending a class and getting a 70%

Question 8		
Commenter		**Comment**
Response: The word "mastery" has been removed from the revised standard. The SPT SDT has revised the requirement such that it now reflects the language that is included in the approved SAR, necessitating the standard to include a requirement to assess each real-time system operator's competence to perform each assigned task.		
Hydro One Networks (1)	yes	Training records for each individual operator should be kept. Measures of competency utilized should include simulations, testing, completed checklists, and job performance appraisals.
Response: While these are good industry practices, the revised standard does not require this level of granularity.		
Dale Wadding; Dairyland Power Cooperative (5)	yes	
Edward J. Carmen; Baltimore Gas & Electric (1)	yes	
Robert Coish; MEHB (1, 3, 5, 6)	yes	
FRCC SO Subcommittee (1,2,5)	yes	
FPL (1,3,5)	yes	
MRO (1,2)	yes	
Pepco Holdings (1)	yes	
Brian Thumm; ITC (1)	yes	
FirstEnergy (1,3,5,6)	yes	
Howard Rulf; WeEnergies (3,4,5)	yes	
Gerald LaRose; NYPA (1)	yes	
Ron Falsetti; IESO (2)	yes	

9. Do you agree that entities should evaluate their training programs every year? (R9.)

Summary Consideration:

The majority of the commenters agreed that entities should evaluate their training programs every year. The majority of the stakeholders also support an annual review and recognize that more frequent evaluations as part of the learning activity can contribute to meeting the annual review requirement.

In the second draft version of the standard, the SPT SDT revised Requirement 1 such that it now identifies the phases of the SAT process that must be included in the development of the training, including analysis, design, development, implementation, and evaluation. R9 in the first draft version of standard addressed the evaluation phase of the SAT process. Therefore with the revised R1, R9, which described the requirements for the evaluation phase of the SAT process, was removed in the revised standard.

Question 9		
Commenter		**Comment**
John Kerr; GRDA	no	Evaluation should occurs after each training session, but evaluation of the entire training program should not be required each year.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Matthew Santos; SDE&G	no	We evaluate our training before we deliver it each time to see if it applies, there are so many changes on the system and in operating procedures we make modifications to the training. To say to do it every year is not practical (You are to late). This part of the Standard should just say "Evaluate your training program as needed". Doing it this way eliminates your suggested annual evaluation of the entire training program. I think that R9.1, R9.2 & R9.3 (Post feed back) is good for anything you missed prior to delivering the training and make it better for next delivery.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Kathleen Goodman; ISO-NE (2) ISO/RTO Council (2)	no	An annual evaluation of training programs is a good practice, it is important but it is not required. As with other proposed requirements, this requirement does not provide a quantitative measure related to evaluation.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This standard is not prescribing any one method, allowing flexibility.		
PJM (2)	no	An annual evaluation of training programs is a good practice, it is important but it is not required. As with other proposed requirements, this requirement does not provide a quantitative measure related to evaluation. There is no explicit template or document detailing how program evaluation is to be conducted. To qualify as a Standard, there need to be specific measures. This is an example where an accreditation process for real time operating personnel training programs would be a better fit than a

Question 9		
Commenter		**Comment**
		Training Standard.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Dale Wadding; Dairyland Power Cooperative (5)	no	Annual evaluation would be an unnecessary administrative burden. Propose requring this every three years or whenever there is a substantive change in the system operator JTA, whichever occurs first.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Ed Davis; Entergy Services (1)	no	We believe responsible entities should continually evaluate their training programs. However, we think that it is not necessary to specify that in a reliability standard for the BES and R9 should be deleted from this standard.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Marion Lucas; Alcoa Power Generating, Inc (1)	no	I agree that training programs should be reviewed but not necessarily on an annual basis. Again this is part of the company's administration function not NERC's.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
CJ Ingersoll; CECD (3)	no	CECD does feel it is appropriate to evaluate the program but disagrees with the information sources reflected in the current draft.
Response: The SPT SDT has insufficient information to respond to this comment.		
Pepco Holdings (1)	no	Periodic evaluation is important, but it is not necessary to evaluate on an annual basis. Rather, the evaluation should be based on known changes to the system, training methods or tasks and should be conducted before the next use of the materials.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Allen Klassen; Westar (1)	no	This is too frequent, need to evaluate a "program" by results and trends over time, suggest 3 year evaluation. This does not preclude evaluating and improving elements of the "program" more often.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		

Question 9		
Commenter		**Comment**
Michael Clime; Ameren	no	Training programs should be evaluated and updated as things change. A complete evalution could be done every three years.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Michael Scott; APS (1,5)	no	An eighteen-month self-assessment (strategically located between the triennial audits) would be effective and cost-efficient.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Brian Thumm; ITC (1)	no	Periodic review of operator training programs should be required, but annual reviews may be excessive. Biannual evaluations would be more appropriate. The standard should also describe by whome the evaluation should be performed. An independent audit of the training program would likely produce different results than if the training manager were to assess the incumbent program.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Dan Kay; South Mississippi EPA (4)	no	This should be the left to the employer, not required by NERC in a standard.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Hydro One Networks (1)	Yes/no	Training program evaluation and improvement should be an ongoing process. If the standard specifies a time period, a one-year cycle may be too long. Any specified time should add the words “as a minimum.” The response to feedback and lessons learned should be used to improve training on a continuous basis. Adjustments should be made to the curricula, design, development, and implementation of training as required and practical.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Ron Falsetti; IESO (2)	Yes/no	This will help the entity in its annual review of its training plan, but is part of the annual training plan itself (4, above).
Response: The SPT SDT agrees with your comment.		
Ron Gunderson; NPPD (1)	Yes/no	We agree with "should", but R9 says "shall" and identifies it as a medium risk requirement. The design of an item in a

Question 9		
Commenter		**Comment**
Robert Coish; MEHB (1, 3, 5, 6) MISO (1,6)		training program (or lack thereof), does not put the Interconnection at risk of cascading. Requirements 4 and 9 could be combined and simplified (provide annual review and a summary of changes).
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Jason Shaver; ATC (1)	yes	Although ATC agrees with the question as posed above, this is not consistent with the way proposed Requirement 9 is written. ATC is supportive of conducting an annual review of training programs; however, Requirement 9 is overly prescriptive. ATC proposes that the following change be made: Each RC, BA and TO shall evaluate its System Operator training program to determine if the training is meeting their system operators' needs and, if not, use the results to update the program to correct identified deficiencies.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
SCE&G ERO WG (1, 3, 5)	yes	What constitutes an "evaluation?"
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Duke Energy (G1) (1)	yes	Is an evaluation of the training program to be able to train to a JTA that is changing (i.e. this has the potential of chasing a moving target)? Requirements 4 and 9 could be combined and simplified (provide annual review and a summary of changes).
Response:. The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Michael Gammon; KCP&L (1)	yes	Annually seems a bit over the top, however, once a program is implemented, it should not take very much to evaluate a training program each year including the sources for feedback as they are available.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Jim Gunnell; SPP (2)	yes	At least once per year. These evaluations should include recommendations for improvement and implementation timelines for making such improvements. Participant feedback should be a component of these evaluations.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the		

Question 9		
Commenter		**Comment**
revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
NPCC CP9 (1, 2)	yes	NPCC participating members believe that a yearly review is laudable and good practice, but should not be a requirement.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
WECC OTS (1,2)	yes	OTS supports a requirement for yearly evaluation of the training program "to meet the criteria for successful performance as identified in R1.7." provided the performance criteria is not task specific as mentioned above in Questions #1 and 8.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Gordon Rawlings; BCTC (1)	yes	BCTC supports a requirement for yearly evaluation of the training program "to meet the criteria for successful performance as identified in R1.7." provided the performance criteria is not task specific as mentioned above in Questions #1 and 8. We would support a simple gap analysis be performed to determine what worked and what didn't work.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
MRO (1,2)	yes	It appears that based in the requirements listed under R9. that this is an ongoing exercise and is accomplished annually if the requirements are met. Further, please clarify the intent of R9.3.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Will Franklin; Entergy (6)	yes	However, R9 is redundant. Evaluating the training program is inherent in developing an annual plan as identified in R4.
Response: The SPT SDT has removed R9 and rolled the requirement to conduct evaluations into the revised R1, as part of the SAT methodology. The SAT methodology supports a variety of approaches to evaluate training. This requirement is not prescribing any one method, allowing flexibility.		
Richard Krajewski; Public Service Co of NM (1)	yes	Provided the performance criteria is not task specific.
Response: The SPT SDT has insufficient information to respond.		
William J. Smith; Allegheny	Yes/no	

Question 9		
Commenter		**Comment**
Power (1)		
Edward J. Carmen; Baltimore Gas & Electric (1)	yes	
Santee Cooper (G2)	yes	
FRCC SO Subcommittee (1,2,5)	yes	
TVA (1)	yes	
FPL (1,3,5)	yes	
SPP OTWG (1,2)	yes	
WECC RCCWG (1,2)	yes	
Mark Bennett; Gainesville Regional Utilities (5)	yes	
Southern Co (1,3,5,6)	yes	
Howard Rulf; WeEnergies (3,4,5)	yes	
Roger McBeth; Northeast Utilities (1)	yes	
Allan George; Sunflower (1)	yes	
John Bussman:AECI (1,5,6)	yes	
SRP (1)	yes	
Jim Sorrels; AEP (1)	yes	
James Hinson; ERCOT (2)	yes	
FirstEnergy (1,3,5,6)	yes	
Alan Adamson; NYSRC (2)	yes	
Brian Tuck; BPA (1)	yes	

10. Do you agree that requiring entities to update their training materials as needed before the materials are used as necessary?

Summary:

The comments express overall agreement with the concept of keeping training material up to date. There are concerns with the methods that can be used to do this and the viability of this as a measurable requirement for the proposed standard. Based on stakeholder feedback, the SPT SDT removed this requirement and updated the measures.

Question 10		
Commenter		**Comment**
Richard Appel; Sunflower Electric Power Co (1,3,5)	no	Not requiring but allowing upgrades as needed.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Mark Bennett; Gainesville Regional Utilities (5)	no	Let the entities train as they see fit within the structure of PER-002
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Michael Clime; Ameren	no	Why would any Trainer not do this anyway. Why do we need a Standard for it?
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
SCE&G ERO WG (1, 3, 5)	no	Is this not already covered in R5.1.2 implicity? This proposed requirement is fundamental to training and does not need to be required.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Marion Lucas; Alcoa Power Generating, Inc (1)	no	Unless major system changes or major NERC rules change, the company's training plans need not be changed or reviewed that often. Every 3 years would be more than adequate to review training plans.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Ed Davis; Entergy Services (1)	no	We believe responsible entities should update their training materials. However, we think that it is not necessary to specify that in a reliability standard for the BES and R10 should be deleted from this standard.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Jim Sorrels; AEP (1)	no	No. We agree with the concept, just not the wording of R10. As presently worded, it should be a guideline not a requirement. Keep in mind that NERC itself has a history of using old reference material and training documents. NERC certification exams do not test the user on the most

Question 10		
Commenter		**Comment**
		recent and current Reliability Standards, rather for practical purposes, the exam has a cut-off date for which Standard Revisions will be included in the exam. This typically results in an examinee being tested on some Standards that are not the current version at the time of their exam. Again we agree in concept that all entities need to keep their training materials current and applicable. But, for this to be a requirement, it needs different and more measurable criteria then presently in R10.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
John Bussman:AECI (1,5,6)	no	If materials are being used on a dailey, weekly and monthly basis then updates before using should not be required. There should be an annual review.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Hydro One Networks (1)	no	Although desirable, using updated materials may not always be required. In some cases it is a necessity while in others it is not. Entities should make an evaluation as to the suitability of their materials, facilitator, etc. before using it.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Dan Kay; South Mississippi EPA (4)	no	This should be the left to the employer, not required by NERC in a standard.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Allen Klassen; Westar (1)	no	It is more important to get the training to the operators than to update materials. This can be covered by explaining any portion of the materials that may be outdated or incorrect, rather than not being able to provide prompt and timely training because of a requirement that all materials have been updated. This requirement might prohibit someone from using a training video that contains excellent information but also includes a reference to an outdated requirement or procedure (90% corect, 10% wrong).
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Alan Adamson; NYSRC (2)	no	
ISO/RTO Council (2) Kathleen Goodman; ISO-NE (2)	Yes/no	In response to the question, the IRC (ISO-NE) agrees that training materials should be up-to-date. In response to the proposed R10, the associated measures have no relationship to evaluating whether or not the materials are up-to-date. The Drafting Team must more

Question 10		
Commenter		**Comment**
		accurately define the term "accurately reflects" .
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Ron Gunderson; NPPD (1) Robert Coish; MEHB (1, 3, 5, 6) MISO (1,6)	Yes/no yes	Your question does not mirror R10. Yes, material should be reviewed. R10 appears to be something that can not be measured, with the exception of applying it after the fact when the operator didn't have perfect knowledge. Also, the measure implies that even training that will not be offered in a given year must be annually updated. This is another requirement that should be aligned with the CEH program.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
PJM (2)	Yes/no	In response to the question, PJM agrees that training materials should be up-to-date. In response to the proposed R10, the associated measures have no relationship to evaluating whether or not the materials are up-to-date. The Drafting Team must more accurately define the term "accurately reflects" . Also, there is no specificity identifed as to what constitutes "current operating environment". What is required to determine if an entity is in compliance or out of compliance?
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Matthew Santos; SDE&G	Yes/no	Okay you have done a JTA and built your training program and made adjustments to the JTA (Kept it up to date) you will be training your folks in the current operating environment. If not, go and sit out on the floor in real time and observe to see if the training is up to date with what the Operators are doing. Does this requirement really need to be stated? Define "accurately reflects" Question does not reflect standard as it is stated
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Duke Energy (G1) (1)	yes	Yes, material should be reviewed. Here again the question does not match the requirement referenced. Requirement 10 appears to be something that cannot be effectively measured, with the exception of applying it after the fact when the operator didn't have perfect knowledge. In addition, the measure implies that even training that will not be offered in a given year must be annually updated. This is another requirement that should be aligned with the CEH program.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the		

Question 10		
Commenter		**Comment**
standard. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		
Howard Rulf; WeEnergies (3,4,5)	yes	I agree with the wording of question #10. Wording in R10 is different than this question though. It requires that the training program reflect the "current" operating environment. R10 should not be worded to preclude training on known changes/improvements before they are implemented.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Jason Shaver; ATC (1)	yes	Although ATC agrees with the question as posed above, this is not consistent with the way proposed Requirement 10 is written. ATC proposes that the SDT rewrite this requirement to better align it with the question. Any training program should be reviewed prior to conducting the actual training; however, NERC should not require an annual review of all training programs if a program is not scheduled for delivery in that year. Requiring an annual review of all classes, regardless of anticipated delivery schedule is unduly burdensome and of no value to the industry. Lastly, this requirement fails to take into account the NERC CE Program requirements. Existing classes previously approved and delivered under the NERC CE Program must be reviewed and updated prior to delivery. The process for ensuring that this happens is auditable under the NERC CE Program and should not be duplicated here.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.		
Will Franklin; Entergy (6)	yes	Obviously the training material should be current. However a particular training module need not be updated until is being prepared for presentation. Additionally, corrections should be allowed to occur during training sessions since things can change quickly and not allow the training materials to be updated (e.g. setpoints, procedure steps, new equipment). On a similar topic, the NERC Operator exam process should be held to maintaing tests current under this philosophy (or not including/grading questions on information that has changed during the testing cycle). We have had to train operators on old/outdated information just for testing purposes. This is not productive.

Question 10		
Commenter		**Comment**
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
SRP (1)	yes	It is a worthwhile target. I would hope that some provision for edits or correction notes during a class could be allowed. I would hate to see this requirement prevent the delivery of needed training if resources are constrained, which can happen with any size training department.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Michael Scott; APS (1,5)	yes	Latitude for making approved pen-and-ink revisions to curriculum should be allowed, enabling "the show to go on", without a slow word processing and approval cycle. Let's stay nimble.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
SPP OTWG (1,2)	yes	Yes, this is good in theory, but it should be a "guide" not the standard. This would be very difficult to put into practice. You can still deliver the training and point out updates rather than delaying necessary training.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
John Kerr; GRDA	yes	Once again, this should be a guide and not a standard.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Jim Gunnell; SPP (2)	yes	This seems to be more of a recommendation than a rule. I would be interested in seeing a plan to enforce this requirement. If it's not enforceable, the level of accountability diminishes.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
CJ Ingersoll; CECD (3)	yes	This answer is applicable to a general operator training program, not necessarily any potential training matierial such as for new-hires.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
NPCC CP9 (1, 2)	Yes/no	NPCC Participating members expressed concern on how the phrase "accurately reflects" can be quantified and measured and requests clarification. If this is not practical then it should be removed as a Requirement.

Question 10		
Commenter		**Comment**
Response: Based on stakeholder feedback, this requirement has been removed from the standard.		
Ron Falsetti; IESO (2)	Yes/no	Yes, but it's too fine a requirement and appears micro-managing. It is also covered by the annual training plan activities. We suggest that this requirement be combined with other annual review requirements or be removed.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Gordon Rawlings; BCTC (1)	yes	This requirement does not specifically say the words "training materials" and it should say this. The measure says "training materials".
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Brian Thumm; ITC (1)	yes	Information provided to trainees should accurately reflect the current operating environment, so if that requires updating the training materials, then yes, updating training materials as needed is necessary. That's not how the standard is written, though.
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Brian Tuck; BPA (1)	yes	While it is good practice it does not belong in the standard. See response to Q19
Response: Based on stakeholder feedback, this requirement, R10, has been removed from the standard.		
Dale Wadding; Dairyland Power Cooperative (5)	yes	
Edward J. Carmen; Baltimore Gas & Electric (1)	yes	
Santee Cooper (G2)	yes	
FRCC SO Subcommittee (1,2,5)	yes	
William J. Smith; Allegheny Power (1)	yes	
TVA (1)	yes	
Michael Gammon; KCP&L (1)	yes	
FPL (1,3,5)	yes	
MRO (1,2)	yes	
WECC RCCWG (1,2)	yes	

Question 10		
Commenter		**Comment**
Richard Krajewski; Public Service Co of NM (1)	yes	
WECC OTS (1,2)	yes	
Southern Co (1,3,5,6)	yes	
Pepco Holdings (1)	yes	
James Hinson; ERCOT (2)	yes	
Roger McBeth; Northeast Utilities (1)	yes	
Allan George; Sunflower (1)	yes	
FirstEnergy (1,3,5,6)	yes	

11. Do you agree with the Violation Risk Factors assigned to each requirement in the proposed standard? If no, please identify which requirement you feel should have a different risk factor, and identify why.

Summary Consideration:
The comments range from identifying a lack of understanding of what a Violation Risk Factor (VRF) is to giving recommendations on the factors for each requirement. Several commenters disagreed that any of requirements should have a High risk factor. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). In the revised standard, none of the requirements are assigned a High VRF.

Question 11		
Commenter		**Comment**
Michael Clime; Ameren	no	Don't even need R10.
Response: The SPT SDT has removed R10.		
Richard Appel; Sunflower Electric Power Co (1,3,5)	no	I didn't see where the factors are explained.So must disagree.
Response: All standards are required to have Violation Risk Factors as part of the Standards process. The Reliability Standards Development Procedure manual explains the definitions of these values.		
Michael Scott; APS (1,5)	no	I don't understand how the value of these Factors is calculated, so I can't agree.
Response: All standards are required to have Violation Risk Factors as part of the Standards process. The Reliability Standards Development Procedure manual explains the definitions of these values.		
Matthew Santos; SDE&G	no	I do not see how this applies, need more Info on how you came up with this Violation Risk Factor?
Response: All standards are required to have Violation Risk Factors as part of the Standards process. Reliability Standards Development Procedure manual explains the definitions of these values. The SPT SDT evaluated all requirements relative to the risk factor guides. Based on stakeholder feedback, the SPT SDT revised the risk factors accordingly.		
TVA (1)	no	Was the term "Violation Risk Factor" defined ? What criteria and methods were used to determine Violation Risk Factor levels? A "High" on any of the requirements seems a bit extreme. If High is used a justification should be providedl.
Response: All standards are required to have Violation Risk Factors as part of the Standards process. The Reliability Standards Development Procedure manual explains the definitions of the risk factors.		
Mark Bennett; Gainesville Regional Utilities (5)	no	Again, depending on the size and configuration of the entities generation/transmission system depend on whether the risk factors are assigned at all.
Response: Per the NERC Standards Development process, all standards are required to have Violation Risk Factors.		
ISO/RTO Council (2)	no	See response to question 19
Response: The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium.		

Question 11		
Commenter		**Comment**
Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for system operators that meets minimum standards may incur additional cost. The SPT SDT has significantly revised the standard based on industry feedback.		
PJM (2)	no	See response to question 19
Response: The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost. The SPT SDT has significantly revised the standard based on industry feedback.		
Kathleen Goodman; ISO-NE (2)	no	See response to question 19
Response: The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost. The SPT SDT has significantly revised the standard based on industry feedback.		
Santee Cooper (G2)	no	It is impractical to evaluate the risk factors until we have a clear understanding of the Requirements in this standard.
Response: The SPT SDT realizes that VRFs may change if any requirements are modified. The SPT SDT has reviewed all assigned VRFs for the draft two of this standard.		
Pepco Holdings (1)	no	The Risk Factors are not consistent with the definitions of the Violation Risk Factors in the Reliability Standards Development Procedure adopted August 2, 2006. We need to be careful not to confuse importance with risk. Nothing in a training standard could rise to the level of a High Risk Factor, that quote -is, one that, if violated, could directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures; or (b) is a requirement in a planning time frame that, if violated, could, under emergency, abnormal or restorative conditions anticipated by the preparations, directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition. -unquote. Some of the training requirements may meet the definition for Medium Risk Factor, while most would result in a Lower Risk Factor.
Response: Based on stakeholder comments the SPT SDT has changed all high risk factors to medium or low risk. Training has been cited as a major contributing factor to many large scale events and		

Question 11		
Commenter		**Comment**
blackouts and hence the levels of violation risk factor were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
WECC OTS (1,2)	no	OTS notes NERC documents on Violation Risk Factors state, "These reliability-related risks are proposed for use when determining a penalty or sanction for a violation of that requirement." Thus the purpose of the risk factors is for use when determining a penalty or sanction. Also from NERC documents, the risk factors are intended to represent the following in the operating timeframe: High = A requirement that, if violated, could directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures; Medium = A requirement that, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; Lower = A requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. A requirement that is administrative in nature; With the understanding that Violation Risk Factors are not to rank the importance of a requirement to the industry but rather as an aggravating factor in determining penalties and sanctions, OTS does not support the Violation Risk Factors as listed in the draft Standard. A review of the Measures in the Standard indicate all Requirements are essentially administrative in terms of providing documentation the Requirment has been met. A lack of documentation does not necessarily mean the training or other requirement did not occur. OTS recommends all Violation Risk Factors in this Standard be set at "Lower."
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium. Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of violation risk factor were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Richard Krajewski; Public Service Co of NM (1)	no	With the understanding that Violation Risk Factors are not to rank the importance of a requirement to the industry but rather as an aggravating factor in determining penalties and sanctions, PNM does not support the Violation Risk Factors as listed in the draft Standard. A review of the Measures in the Standard indicate all Requirements are essentially administrative in terms of providing documentation the Requirment has been met. A lack of documentation does not necessarily mean the training or

Question 11		
Commenter		**Comment**
		other requirement did not occur. PNM recommends all Violation Risk Factors in this Standard be set at "Lower."
Response: Based on stakeholder comments the SPT SDT has changed all high risk factors to medium. Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of violation risk factor were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
SPP OTWG (1,2)	no	None of the Violation Risk Factors should not be rated as "high". R1, R3, R5, & R6 are all marked as "high". They should be dropped to a violation risk of "medium". R8 is "medium" but should be dropped to "low" because it is just record keeping. R9 should drop from "medium" to "low".
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
MRO (1,2)	no	The MRO recommends that the SDT review the VRF associated with the following requirements: R1, R3, R5, R6, R8, and R9; with respect to the fact that each of the requirements is calling for an administrative action to be taken which does not directly meet the definition of High Risk.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
MISO (1,6)	no	We agree training is very important. However, we cannot identify any of the items in this standard should be classified above a lower risk. It's the direct actions of the operators that can put the interconnection at risk. Missing an item (or varying) in the design of a training module does not put the Interconnection at risk of cascading.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium risk factors. Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of violation risk factor were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced where appropriate.		
FPL (1,3,5)	no	All the risk factors associated with the training standards should be "Lower" risk factors. These training activities will be occuring outside of the "real-time" operating arena and therefore violations of these requirements cannot in and of themselves cause impacts as defined by "High" and "Medium" risk factors. An entity would be required to violate several core operating requirements prior to the violation of a training requirement having any material

Question 11		
Commenter		**Comment**
		impact on a system. At that, the linkage of an event to a training activity would be extremely subjective.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium risk factors. Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Hydro One Networks (1)	no	The Requirements assigned High Risk Factor should be Medium. According to the definitions of Risk Factors, Training itself (or lack of it) will not directly contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures. The high fisk factor is in the requirements on credentials of operators which is dealt with in another standard.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium risk factor. Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
William J. Smith; Allegheny Power (1)	no	Requirement R1 for a Job Task Analysis would certainly be very important in ensuring that a training program has addressed every required subject. However, to say that it is a High risk factor implies that it is critical to system reliability. There are probably many company training programs preparing highly qualified operators that support system reliability that do not have a Job Task Analysis completed to the detail specified. Given this situation, a lower risk factor may be more appropriate.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium risk factor. The SPT SDT has either removed the requirement (R3 and R5) or changed the risk factor from High to Medium (R1 and R6). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Howard Rulf; WeEnergies (3,4,5)	no	All requirements except R6 (and its sub requirements) are administrative. None of the requirements put the BES one event away from a cascading failure.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Gerald LaRose; NYPA (1)	no	In my opinion, only R6, the implementaton of a System Operator training program, merits a "High" VRF as a Requirement that, if violated, could… place the bulk electric system at an unacceptable risk of instability, separation, or

Question 11		
Commenter		**Comment**
		cascading failures". The remaining Requirements with a proposed "High" VFR are contributory in nature and are more appropriate as "Medium".
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Ron Falsetti; IESO (2)	no	A well-structured training program is an important component to ensure that the concerned operating entities bring their system operation personnel to the competency needed to meet the entities' certification requirements and to assure operating reliability. However, actions taken by the operators in accordance with NERC standards have a direct impact on system reliability, not the training program itself. There are a number of requirements in this standard that are rated High and Medium, which we feel should at best be rated Medium and Lower, respectively, as they have a much more remote, secondary impact than actual operation. For comparison, for example, mitigating limit violation is assigned a High level; maintaining generation-load-interchange balance is assigned a Medium level. These requirements have a more direct impact on ensuring system reliability and controlling system conditions than developing and delivering the training program.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Will Franklin; Entergy (6)	no	This standard is administrative. Nothing in this standard affects reliability in the first degree. Thus, most if not all items should be rated as "lower".
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
John Kerr; GRDA	no	The risk for a violation should be no more than medium to low. The levels may need to be reconsidered.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the		

Question 11		
Commenter		**Comment**
standard and reduced, where appropriate.		
Ron Gunderson; NPPD (1)	no	We agree training is very important. However, we cannot identify any of the items in this standard should be classified above a lower risk. It's the direct actions of the operators that can put the interconnection at risk. Missing an item (or varying) in the design of a training module does not put the Interconnection at risk of cascading.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Tim Hattaway; Alabama Electric Coop (5)	no	R1 should be Med or Low
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
FRCC SO Subcommittee (1,2,5)	no	All the risk factors associated with the training standards should be "Lower" risk factors. These training activities will be occuring outside of the "real-time" operating arena and therefore violations of these requirements cannot in and of themselves cause impacts as defined by "High" and "Medium" risk factors. An entity would be required to violate several core operating requirements prior to the violation of a training requirement having any material impact on a system. At that, the linkage of an event to a training activity would be extremely subjective.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Robert Coish; MEHB (1, 3, 5, 6)	no	We agree training is very important. However, we cannot identify any of the items in this standard should be classified above a lower risk. It's the direct actions of the operators that can put the interconnection at risk. Missing an item (or varying) in the design of a training module does not put the Interconnection at risk of cascading.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were		

Question 11		
Commenter		**Comment**
applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Duke Energy (G1) (1)	no	Training is obviously very important. However, none of the requirements in this standard should be classified above a lower risk. Direct actions of operators can put the interconnection at risk. Missing an item (or varying) in the design of a training module does not directly put the Interconnection at risk of cascading. We must differentiate between risk and importance. Deviation from a template training design does not put the Interconnections at risk of cascading. The standard as a whole should be evaluated at a lower risk.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Marion Lucas; Alcoa Power Generating, Inc (1)	no	See comment 1. High and Medium risk factors assigned to listing of job tasks/documentation/ or review is extreme. High and medium risk factors should be equated with critical or significant impact on the Bulk Power System. As in above coments, the administrative functions that should NOT be included in the Standard (such as R1 - JTA) would not then be a violation consideration.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
CJ Ingersoll; CECD (3)	no	The Risk Factors associated with documentation, i.e. JTA, Annual Training Plan, Qualification Verification, should be assigned a Low state. The Risk Factor associated with actual training activity should be assigned a Medium Risk Factor. The items CECD suggests are Low Risk Factors should be assigned that specific priority due to the fact that the items described above, are administrative, and do not directly cause or contribute to instability, separation or cascading events (emphasis on "directly").
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Ed Davis; Entergy Services (1)	no	All of the Requirements in this draft standard should have a

Question 11		
Commenter		**Comment**
		Violation Risk Factor of Low. No Requirement in any training standard should have a Violation Risk Factor above Low. A VRF of High applies to requirements that - could directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures. Violation of a training requirement does not meet this criteria for High. A VRF of Medium applies to requirements that - could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures. Violation of a training requirement does not meet this criteria for MEDUIM.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
John Bussman: AECI (1,5,6)	no	Don't agree with R1
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
SCE&G ERO WG (1, 3, 5)	no	We do not believe the risk factor of "High" for R5 is appropriate due to the fact that quality training can be provided by a trainer on the material and subject mater experts to address questions or concerns. This should be ranked as "Medium."
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Jason Shaver; ATC (1)	no	ATC believes that only Requirement 6.5.1 should be given a High Violation Risk Factor. All other requirements should be either medium or lower. R1 lower ATC suggests that R2 and R3 be deleted.

Question 11		
Commenter		**Comment**
		R4 lower ATC suggest that R5 be deleted R6 medium R6.5.1 High R6.5.2 should be deleted R7 should be deleted R8 lower R9 lower R10 medium
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Michael Gammon; KCP&L (1)	no	**Standard** / **Comments** R1: JTA — High — Medium R2: New hire requirements — Medium — High R3: Incumbent training needs — High — High R4: Training plans — Medium — Medium R5: Trainer competency — High — Medium R6: Training implementation — High — High R7: Training documentation — Low — Low R8: Training tracking — Medium — Low R9: Training program evaluation — Medium — Low R10: Training program maintenance — Medium — Medium
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Jim Sorrels; AEP (1)	no	No. R1 should be rated as Lower Risk. It is not the lack of documenting job task analysis that would place the system at risk, it is the quality of the performance of those tasks. While, a job task analysis may be important to developing a good training plan, it does not meet the requirements of the

Question 11		
Commenter		**Comment**
		High Risk definition for NERC Violation Risk Factors. R2 should be rated Lower Risk. Newly hired and entry-level operators should not be operating the system unsupervised until they are qualified. Nonperformance of R2 will not directly impact the reliability of the system, but rather would be an indirect cause over time. R2 does not meet the VRF definition of High Risk. We concur with R3 being rated High Risk, as R3 relates to assessing successful or unsuccessful performance of reliability tasks which directly effects reliability of the system. R4 should be rated Lower Risk as having a documented annual training plan is administrative in nature and lack of the documentation (the Plan) does not in itself mean the required and proper training has not and does not occur. R5 in its present state should only be a guideline thus does not need a VRF. Conceptually, the qualification of the trainer would be Lower Risk as it is not the trainer that performs the actual reliability tasks. That is not to say having qualified trainers is not important. R6 should be rated Medium Risk. While proper implementation of the Training Plan is important, it does not directly lead to unreliable operation of the system, but rather is an indirect cause. Thus, it does not meet the NERC VRF definition of High Risk. We concur with R7 being rated a Lower Risk as it pertains to documentation which is administrative in nature. R8 should be rated Lower Risk, as this is an administrative function. Nonperformance to R8 does not directly affect reliability, but could be an indirect cause. R9 should be rated Lower Risk. While this an important administrative task, it by itself would not be a direct cause of unreliable operation. R10 in its present form should not be a requirement, thus should not have a rated risk factor. How does R10 mesh with the concept of using a "generic" simulator for some drills and exercises as asked in question #7, when R10 states the training program must "reflect the current operating environment"? A generic simulator may be on a pseudo system which does not reflect any entity's current operating environment. This is just an example of why the present wording of R10 is inadequate.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		

Question 11		
Commenter		**Comment**
Southern Co (1,3,5,6)	no	Under Requirement 1, one would not expect an imminent cascading outage to occur due to a job task analysis (JTA) not being performed. Not having a list of company-specific reliability-related tasks for a system operator is a problem, but the system operator could have 30 years experience and it's the experience which prevents cascading outages and not specifically the JTA. Recommend Medium risk factor. Under Requirement 3, not having a training needs assessment may not be a wise action on the part of a RC, BA, or TOP, but would not conducting a training needs assessment directly lead to cascading outages if the assessment did not exist? Recommend Medium risk factor. Under Requirement 5, if the system operator trainer is very experienced with their duties, how will not having a certain level of competency directly result in cascading outages, i.e, high risk factor rating. What is NERC's acceptable level of competency-NERC certified, Master's Degree, 10 years as an instructor? Recommend Medium risk factor. Under Requirement 6, same comments as above. Recommend Medium risk factor.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
NPCC CP9 (1, 2)	Yes/no	A violation risk factor of High means a violation has the potential to directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or did or could have placed the bulk power system at an unacceptable risk of instability, separation or cascading failure. R1. No. A lack of conducting a formal job task analysis is not a high risk factor to the BPS. It should be Medium R4. No. This should be "low." This is purely administrative. R8. No. It should be Lower and mainly administrative. R9. No. It is Lower and administrative.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Gordon Rawlings; BCTC (1)	no	BCTC notes NERC documents on Violation Risk Factors state, "These reliability-related risks are proposed for use

Question 11		
Commenter		**Comment**
		when determining a penalty or sanction for a violation of that requirement." Thus the purpose of the risk factors is for use when determining a penalty or sanction. Also from NERC documents, the risk factors are intended to represent the following in the operating timeframe: High = A requirement that, if violated, could directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures; Medium = A requirement that, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; Lower = A requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. A requirement that is administrative in nature; With the understanding that Violation Risk Factors are not to rank the importance of a requirement to the industry but rather as an aggragating factor in determining penalties and sanctions, BCTC offers the following comments on the Violation Risk Factors in the draft Standard: R1 is listed as High and while it is clearly important to reliable operations, R1 does not fit the definition of High and should be changed to Medium or LowER. R2 is listed as Medium and BCTC agrees or reduce it to LowER. R3 is listed as High and while it is important to developing a training program, R3 does not fit the definition of High and should be changed to Medium or LowER. R4 is listed as Medium and BCTC agrees or reduce it to LowER. R5 is listed as High and while it is important to developing a training program, R5 does not fit the definition of High and should be changed to Medium or LowER. R6 is listed as High and while it is important to developing a training program, R6 does not fit the definition of High and should be changed to Medium or LowER. R6.5.2 is listed as Medium and BCTC agrees but does not understand why this sub-requirement receives an independent violation risk factor. Is it possible this is meant to apply to R6.5 and both of its sub-requirements R6.5.1 and R6.5.2? If so, since BCTC recommends R6 (all of it) be changed to a Medium or reduce it to LowER it would make this sub-requirement designation unnecessary.

Question 11		
Commenter		**Comment**
		R7 is listed as LowER and BCTC agrees. R8 is listed as Medium and BCTC agrees or reduce it to LowER. R9 is listed as Medium and BCTC agrees or reduce it to LowER. R10 is listed as Medium and BCTC agrees or reduce it to LowER.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Allan George; Sunflower (1)	no	What is definition of Risk Factor
Response: Please see the Reliability Standards Development Procedure manual pages 7-8 for definitions. http://www.nerc.com/standards/newstandardsprocess.html		
Dan Kay; South Mississippi EPA (4)	no	This should be the left to the employer, not required by NERC in a standard.
Response: All standards are required to have Violation Risk Factors as part of the Standards process. Reliability Standards Development Procedure manual explains the definitions of the risk factors. Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium.		
Alan Adamson; NYSRC (2)	Yes/no	A violation risk factor of High means a violation has the potential to directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or did or could have placed the bulk power system at an unacceptable risk of instability, separation or cascading failure. R1. No. A lack of a job task analysis is not a high risk factor to the BPS. It should be Medium R2. Yes. R3. Yes R4. No. This should be low. This is purely administrative. R5. Yes. Lack of competency in developing the trainig program could have unacceptable ramifications on the training. R6. Yes R7. Yes R8. No. It is Lower since it is purely administrative. R9. No. It is Lower and administrative. R 10. Yes.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium		

Question 11		
Commenter		**Comment**
or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Allen Klassen; Westar (1)	no	Based on the NERC definitions of the Risk Factors, it is hard for me to agree that ANY of this Standard qualifies as High (causing instability, cascading failures, etc) even giving them a risk factor of Medium may be a "stretch". I suggest R1, R3, R5, & R6 be changed from High to Medium, and R8 be changed to LowER (as is record keeping and seem to match the definition of ". administrative in nature .")
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Brian Thumm; ITC (1)	no	Although training is a very important component of a reliable transmission network, the performance of job task analyses, conductance of training needs assessments, and verification of trainer qualifications does not rise to the level of "high" risk. All of these high-risk activities are more appropriately classified as medium-risk.
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Brian Tuck; BPA (1)	no	While training has been considered a contributing factor in many system disturbances, it does not follow that the essentially administrative tasks performed in the process of developing, implementing, and record-keeping of training activities should be assigned Violation Risk Factors of Medium or High. Incomplete training documentation does not mean that training provided by an entity has been ineffective or non-existent. Poor documentation practices do not "directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures", stated in the NERC definition of High Risk. BPA notes that a Violation Risk Factor of Lower does not imply that it is acceptable to ignore or poorly perform the requirement. BPA suggests the following Violation Risk Factors for the requirements described in the proposed standard:

Question 11		
Commenter		**Comment**
		R1 - Prepare and update JTA for each position. LowER R2 - Perform training needs assessment for each new hire. Medium R3 - Perform annual training needs assessment for each incumbent. Medium R4 - Develop annual training plan for each system operator. LowER R5 - Training delivery by qualified instructors. Medium R6 - Training provided meets Knowledge and Skill requirements of position. Medium R7 - Documentation Guidelines for training materials. LowER R8 - Documentation Guidelines for personnel training records. LowER R9 - Annual program review to ensure effectiveness. LowER R10 - Use of updated instructional materials. LowER
Response: Based on stakeholder comments the SPT SDT has changed all High risk factors to Medium or Low risk. The SPT SDT agrees and has either removed the requirement (R3, R4, R5, R6, R7, R8, R9, and R10) or changed the risk factor from High to Medium (R1 and R2). Training has been cited as a major contributing factor to many large scale events and blackouts and hence the levels of VRF were applied with this in mind. The SPT SDT has re-evaluated all assigned VRFs for this draft posting of the standard and reduced, where appropriate.		
Roger McBeth; Northeast Utilities (1)	yes	I agree with the High Risk Factor for Requirement 1 but not the level of detail specified for the JTA. It is important to have a company specific task list and a task to training matrix that identifies the following: Training Frequency = Initial Training, Continuing Training or Both Training Environment = Classroom, Simulator, OJT, etc. Training Activity Id which identifies the training activity with the objectives/content that addresses the knowledge/skills associated with the task.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Jim Gunnell; SPP (2)	yes	
SRP (1)	yes	
James Hinson; ERCOT (2)	yes	
WECC RCCWG (1,2)	yes	

Question 11		
Commenter		**Comment**
FirstEnergy (1,3,5,6)	yes	

12. Do you agree with the Measures in the proposed standard?

Summary:

Most commenters did not agree with the Measures in the proposed standard. Based on industry feedback on the SPT SDT has significantly revised the measures, as follows:

- M1 has been modified to reflect the revised R1 focusing on the outcomes of the SAT process.
- M2 and M3 have been combined into one measure that requires evidence of the latest assessment for each position, not for each System Operator.
- M4 and the associated requirement, R4, have been removed from the revised standard.
- M5 and the associated requirement, R5, have been removed from the revised standard.
- M6 and M7 and the associated requirement, R6, have been removed from the revised standard.
- M8 and the associated requirement, R6, have been removed from the revised standard.
- M9 and the associated requirement, R7, have been removed from the revised standard.
- M10 and the associated requirement, R8, have been removed in the revised standard.
- M11 and the associated requirement R9, have been removed from the revised standard.
- M12 and the associated requirement, R10, have been removed in the revised standard.

Question 12		
Commenter		**Comment**
Richard Appel; Sunflower Electric Power Co (1,3,5)	no	I don't think this standard is needed at all. Its just overkill. PER-002 covers training.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		
Marion Lucas; Alcoa Power Generating, Inc (1)	no	This is all a duplication of the much simpler and less intrusive PER-002 and PER-003.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		
Dan Kay; South Mississippi EPA (4)	no	There is no need for this standard. The NERC System Operator Certification Program with the required continiuing education for re-certification that is allready in place is more than sufficient to ensure an adequate level of training is accomplished at the NERC level. Each individual employer must decide the level of training it requires for operation of it's own system.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The certification program is outside the scope of this standard.		
Kathleen Goodman; ISO-NE (2)	no	See response to question 19
Response: The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost.		

Question 12		
Commenter		**Comment**
The SPT SDT has significantly revised the standard based on industry feedback.		
PJM (2)	no	See response to question 19
Response: The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost. The SPT SDT has significantly revised the standard based on industry feedback.		
ISO/RTO Council (2)	no	See response to question 19
Response: The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost. The SPT SDT has significantly revised the standard based on industry feedback.		
Ed Davis; Entergy Services (1)	no	Please revise the Measures to make them compatible with the revised requirements.
Response: The Measures have been re-evaluated and changed to be consistent with the revised Requirements.		
Santee Cooper (G2)	no	It is impractical to evaluate the measurements until we have a clear understanding of the Requirements in this standard.
Response: The Measures have been re-evaluated and changed to be consistent with the revised Requirements.		
SPP OTWG (1,2)	no	Since there are areas within the standard that we disagree with, it is impossible to agree with the Measures in the proposed standard.
Response: The Measures have been re-evaluated and changed to be consistent with the revised Requirements		
FPL (1,3,5) FRCC SO Subcommittee (1,2,5)	no	Measures should be modified in accordance with our comments on the Requirements.
Response: The Measures have been re-evaluated and changed to be consistent with the revised Requirements.		
Pepco Holdings (1)	no	The Measures should be changed to conform to the previous comments. Specifically M 3, M 4, M 8, M10, and M 11
Response: The Measures have been re-evaluated and changed to be consistent with the revised Requirements. Specifically the following changes were made:		

Question 12		
Commenter		**Comment**
M1 has been modified to reflect the revised R1 focusing on the outcomes of the SAT process. M2 and M3 have been combined into one measure that requires evidence of the latest assessment for each position, not for each System Operator. M4 and the associated requirement, R4, have been removed from the revised standard. M5 and the associated requirement, R5, have been removed from the revised standard. M6 and M7 and the associated requirement, R6, have been removed from the revised standard. M8 and the associated requirement, R6, have been removed from the revised standard. M9 and the associated requirement, R7, have been removed from the revised standard. M10 and the associated requirement, R8, have been removed in the revised standard. M11 and the associated requirement, R9, have been removed from the revised standard. M12 and the associated requirement, R10, have been removed in the revised standard.		
Richard Krajewski; Public Service Co of NM (1)	yes	PNM notes that changes to requirements will create appropriate changes to measures.
Response: The Measures have been re-evaluated and changed to be consistent with the revised Requirements		
Allen Klassen; Westar (1)	no	Can't agree with all measures without agreeing to all requirements, however, they match the requirements well in general.
Response: The Measures have been re-evaluated and changed to be consistent with the revised requirements.		
Brian Tuck; BPA (1)	no	BPA agrees the measures are worded appropriately for the Requirements as written. However, BPA and others are requesting changes to the Requirements which will require corresponding changes in many of the Measures.
Response: The Measures have been re-evaluated and changed to be consistent with the revised Requirements.		
Ron Falsetti; IESO (2)	no	We do not agree with the requirements at this time so we are unable to agree with the measures, at least not until the requirements are revised and the measures adjusted accordingly. Please also see comments/suggestions in Q19.
Response: The Measures have been re-evaluated and changed to be consistent with the revised Requirements. The SPT SDT agrees that the element identified is important and are encompassed in the revised standard. The SPT SDT has significantly revised the standard based on industry feedback. The standards addresses the core SAT phases. The SPT SDT agrees with the comment that only specific tasks that are considered critical to reliability should be considered and has revised the requirement to include analysis that considers only reliability-related tasks by System Operator positions. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed		

Question 12		
Commenter		**Comment**
in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT has combined R2 and R3 and removed R4, R5, R6, R7, R8, R9, and R10 from the revised standard.		
NPCC CP9 (1, 2)	no	NPCC Participating members have expressed some disagreement with the Requirements as written so the measures are in question as well.
Response: The Measures have been re-evaluated and changed to be consistent with the revised Requirements.		
MISO (1,6) Ron Gunderson; NPPD (1) Robert Coish; MEHB (1, 3, 5, 6)	no	The measures are too complex. There are already requirements that say what training needs to be provided. Over-specifiying how the training is delivered and the detailed design of the program seems to go too far. There are probably four core requirements in the standard. The measures and compliance monitoring should be simplified (some overall score for the requirements that are met).
Response: Based on industry feedback, the Requirements and the Measures have been simplified. The Requirements have been changed such that how the training is designed, developed, and delivered is not prescribed. The standards now addresses the core SAT phases.		
CJ Ingersoll; CECD (3)	no	The Annual Training plan and training records should be the only items required for inspection based on the answers provided on this comment form.
Response: The NERC standards development process requires Measures for all Requirements that are included in a standard.		
SCE&G ERO WG (1, 3, 5)	no	A list of reliability related tasks and performance expectations should be agreed upon then measures can be developed. The definition of "reliability related task" and agreement of the industry of minimum requirements as associated with these task as it applies to R1.1 through R1.7 should be provided. Also the word "mastery" should be revised to "proficient."
Response: The Measures have been re-evaluated and changed to be consistent with the revised Requirements. In response to your request for examples of reliability-related tasks, the SPT SDT has included a Generic Task List in the revised standard. A generic analysis will not address all the reliability related tasks that a System Operator at a specific entity may perform. Therefore, each entity must complete a company-specific analysis to determine the required training. The SPT SDT has removed the word mastery from the requirement and replaced with acceptable.		
TVA (1)	no	The use of the word "each" in M2 , M3 and M6 made us wonder if it pertained to a person or function. We feel that it would be too administratively cumbersome to be at the individual operator level.

Question 12		
Commenter		**Comment**
Response: The SPT SDT has reviewed the requirements and modified them such that the requirements apply to a position, not individual System Operators. M2 and M3 have been combined into one measure that requires evidence of the latest assessment for each position, not for each System Operator. M6 and M7 and the associated requirement, R6, have been removed from the revised standard.		
Mark Bennett; Gainesville Regional Utilities (5)	no	I believe that if a review of a training program takes place, the only thing needed is student name/ credentials/ outline of program, where they are in the program.
Response: The NERC standards development process requires measures for all Requirements in a standard.		
WECC RCCWG (1,2)	no	Any measure that only requires providing of documentation with no further regard to accuracy or effectiveness is simply a requirement to produce, maintain and update paperwork. This is further stress on entities resources and manpower for nothing more than a cursory look by a Compliance Review team. Either make the measurement have more "teeth" or don't include it at all.
Response: Evidence of compliance for each Requirement is a NERC requirement. The SPT SDT is sensitive to the burden this places on the industry as a result of the approval of this standard however there is an urgent priority placed on the industry to develop effective training programs that are consistent in measurability for audit purposes, as required by the ERO and FERC.		
SRP (1)	no	Any of the Measures that only include showing documentation or a record without any regard to what that documentation should include (e.g. qualification of training personnel) does not provide an objective and impartial measurement. Any measure that only requires providing of documentation with no further regard to accuracy or effectiveness is simply a requirement to produce, maintain and update paperwork. This is further stress on entities resources and manpower for nothing more than a cursory look by s Compliance Review team. Either make the measurement have more "teeth" or don't include it at all.
Response: Evidence of compliance for each requirement is a NERC requirement. The SPT SDT is sensitive to the burden this places on the industry as a result of the approval of this standard however there is an urgent priority placed on the industry to develop effective training programs that are consistent in measurability for audit purposes, as required by the ERO and FERC.		
Roger McBeth; Northeast Utilities (1)	no	Measurement M1 is focusing on the content of a JTA not the training material and program that addresses the company specific task list. Emphasis should be placed on the following not the overly prescriptive items of 1.1 thru 1.7 It is important to have a company specific task list and a task to training matrix that identifies the following:

Question 12		
Commenter		**Comment**
		Training Frequency = Initial Training, Continuing Training or Both Training Environment = Classroom, Simulator, OJT, etc. Training Activity Id which identifies the training activity with the objectives/content that addresses the knowledge/skills associated with the task. Measurement M2 if a position description with well defined hiring requirements for new operators and for M3/M7/M8 a generic incumbent system operator assessment of training needs is not adequate to meet these requirements then these requirements would be an overly burdensome administrative requirement on organizations training staffs.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. M1 has been modified to reflect the revised R1 focusing on the outcomes of the SAT process. In response to your suggestion on the inclusion of the training matrix, based on stakeholder feedback this level of specificity and prescriptiveness would not be endorsed by the industry. The Measures have been re-evaluated and changed to be consistent with the revised Requirements. The SPT SDT does not understand the intent of the last comment.		
Michael Gammon; KCP&L (1)	no	Since commented on the R3 requirement, the proposed M3 no longer fits. I would propose the following language changes: **M3.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, the results of its latest training needs analysis that identifies each incumbent System Operator's training plan as specified in R3.
Response: M2 and M3 have been combined into one measure that requires evidence of the latest assessment for each position, not for each System Operator.		
Michael Clime; Ameren	no	M5 - What determines who is qualified? And what is the documentation that says that they are?
Response: M5 and the associated requirement, R5, have been removed from the revised standard.		
Southern Co (1,3,5,6)	no	Under Measurement 5, it says you must have documentation of the qualifications of the trainer, but Requirement 5 doesn't mention what would be an acceptable level of competency. Recommend allowing each Utility the ability to determine what is the acceptable level of competency. Measurement 1: Recommend that R1.3, R1.4, and R1.5 be removed.
Response: M5 and the associated requirement, R5, have been removed from the revised standard.		

Question 12		
Commenter		**Comment**
M1 has been modified to reflect the revised R1 focusing on the outcomes of the SAT process.		
Brian Thumm; ITC (1)	no	Some of the measures do not accurately capture of the compliance elements of the requirements. For example, M5 requires that the RC/BA/TOp have available for inspection certain documentation of personnel qualifications, but the corresponding R5 does not require the RC/BA/TOp to assemble and retain such documentation. R5 merely requires that the employer verify qualifications of its employees, and such verification would not necessarily require the employer to copy and retain evidence of the qualifications. Much like an NERC audit, the RC/BA/TOp could require the employee to "have available for inspection" any necessary items to demonstrate their qualifications. Disconnects such as this between the Measures and Requirements should be corrected. Proposed wording for R5 is as follows: R5. Each RC, BA, and TOp shall maintain documentation which demonstrates that persons developing or delivering training have the following qualifications …
Response: Requirement 5 addressing trainer qualification has been removed from the revised standard. Based on stakeholder feedback the requirements and the associated measures are not as prescriptive in the revised standard.		
Howard Rulf; WeEnergies (3,4,5)	no	M9: R7.1 through R7.5 and R7.8 should be satisfied by supplying the NERC CE number for the class.
Response: The SPT SDT agrees that some elements of the CE program can be used to comply with this standard. Note that M9 and the associated requirement, R7, have been moved from the revised standard.		
Jason Shaver; ATC (1)	no	ATC disagrees with those measures that are tied to requirements that we believe should be deleted. Measure 12 requires updates to training programs even if that program is not scheduled for delivery in that training year. This measure should be rewritten to require that training programs only need to be reviewed prior to delivery and that the delivered program reflect current industry standards and topology.
Response: The Requirements and Measures have been re-evaluated and changed for this posting of the standard. M12 and the associated requirement, R12, have been removed from the revised standard.		
Allan George; Sunflower (1)	no	only M1, M4, M6, M7, M11, M12 are needed
Response: M1 has been modified to reflect the revised R1 focusing on the outcomes of the SAT process.		

Question 12		
Commenter		**Comment**
M2 and M3 have been combined into one measure that requires evidence of the latest assessment for each position, not for each System Operator. M4 and the associated requirement, R4, have been removed from the revised standard. M5 and the associated requirement, R5, have been removed from the revised standard. M6 and M7 and the associated requirement, R6, have been removed from the revised standard. M8 and the associated requirement, R6, have been removed from the revised standard. M9 and the associated requirement, R7, have been removed from the revised standard. M10 and the associated requirement, R8, have been removed in the revised standard. M11 and the associated requirement, R9, have been removed from the revised standard. M12 and the associated requirement, R10, have been removed in the revised standard. The Requirements and Measures have been re-evaluated and changed for this posting of the standard.		
Michael Scott; APS (1,5)	no	Based on the simplifications recommended in my review of this standard, I suggest the following Measures: M1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, the results of its latest JTA as specified in R1. M2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, the assessment of new System Operator training needs and any resulting individualized training plans as specified in R2. M3. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, the assessment of incumbent System Operator training needs and any resulting individualized training plans as specified in R3. M4. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, the annual training plan for System Operators as specified in R4. M5. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, documentation of personnel qualifications who developed or delivered System Operator training as specified in R5. M6. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, training records that document training activities as specified in R6. M7. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection, the results of its latest program evaluation as specified in R7.
Response: M1 has been modified to reflect the revised R1 focusing on the outcomes of the SAT process.		

Question 12		
Commenter		**Comment**
M2 and M3 have been combined into one measure that requires evidence of the latest assessment for each position, not for each System Operator. M4 and the associated requirement, R4, have been removed from the revised standard. M5 and the associated requirement, R5, have been removed from the revised standard. M6 and M7 and the associated requirement, R6, have been removed from the revised standard.		
Jim Sorrels; AEP (1)	no	No. As AEP does not agree with all the requirements in the proposed standard, we can't agree with all the measures in the proposed standard. M1 - Conceptually we agree, just need to make changes to R1.1 - R1.7 as previously commented. M2 - Shall have available for inspection the results of its latest training needs analysis for each entry-level System Operator job classification. M3 - Shall have available for inspection the results of its latest training needs analysis for each System Operator job classification. M4 - Agree. M5 - Disagree. M5 is not a measure and R5 in its present state is not measurable. By what criteria is each Region and each auditor going to use to determine if an entity's documentation of qualifications is satisfactory? M6 - Disagree. What is meant by training activities? Do you mean have available an entity's entry-level training plan? Or do you mean have available an entity's entry-level training material? Or do you mean something else? M7 - Conceptually agree. However, we desire to see the standard use terminology in a manner consistent with the NERC Continuing Education Program Administrative Manual, which uses the term refresher training as a subset of continuing training. M8 - Consider combining M7 and M8. In essence, the measure is to provide training records. M9 - This measure would not be needed if R7 becomes a guide rather than a requirement of the standard as we suggest in our previous comments. M10 - Remove M10. R8 is not appropriate nor is M10 which is the measure for R8. This is getting too close to making public record an individual's job performance appraisal(s), which heretofore have been treated as confidential between an employer and the employee. M11 - Agree. M12 - Just because an entity provides it latest versions of its training program, that will not necessarily demonstrate that the information within the program accurately reflects the current operating environment as required in

Question 12		
Commenter		**Comment**
		R10. As stated previously, R10 needs work.
Response: M1 has been modified to reflect the revised R1 focusing on the outcomes of the SAT process. M2 and M3 have been combined into one measure that requires evidence of the latest assessment for each position, not for each System Operator. M4 and the associated requirement, R4, have been removed from the revised standard. M5 and the associated requirement, R5, have been removed from the revised standard. M6 and M7 and the associated requirement, R6, have been removed from the revised standard. M8 and the associated requirement, R6, have been removed from the revised standard. M9 and the associated requirement, R7, have been removed from the revised standard. M10 and the associated requirement, R8, have been removed in the revised standard. M11 and the associated requirement, R9, have been removed from the revised standard. M12 and the associated requirement, R10, have been removed in the revised standard.		
Matthew Santos; SDE&G	no	What if a company did not do a JTA? (M1). M2 & M3 are asking for to much, we can show you results of exams. I am not sure of what you mean mismatches on Actual performance and criteria for successful performance? Is this all done in training or real time? M5 - we should only have to show work history and training records of the trainer and maybe the pass/fail rate of those he trained. That might be hard to do if those he trained moved onto other jobs or companies. M6 - Only if that company brings folks in like that. Entry-level is lika a apprenticeship program to me. Clarify if my interpation is wrong. M9 - is telling me that I have to have this documentation in a certain form style as in R7. this seems to be over kill. It should be enough to show that training is being done successfully on what topics and dates it has been delivered. M10 - See question 1 and clarify. M11 - See Question 9 M12 - See question 10 this would be very burdensome to do. The training materials are adjusted before and after delivery until they are going to be delivered again which maybe months to years. This is about taking time to update a course which may not be delivered until months to year or so and changes will have taken place which will cause more time to be used to update the material. In a perfect world this would be very desirable but in the real world it is not going to happen. Manpower, time and system priorites will override this function.
Response: M1 has been modified to reflect the revised R1 focusing on the outcomes of the SAT process.		

Question 12		
Commenter		**Comment**
M2 and M3 have been combined into one measure that requires evidence of the latest assessment for each position, not for each System Operator. M4 and the associated requirement, R4, have been removed from the revised standard. M5 and the associated requirement, R5, have been removed from the revised standard. M6 and M7 and the associated requirement, R6, have been removed from the revised standard. M8 and the associated requirement, R6, have been removed from the revised standard. M9 and the associated requirement, R7, have been removed from the revised standard. M10 and the associated requirement, R8, have been removed in the revised standard. M11 and the associated requirement, R9, have been removed from the revised standard. M12 and the associated requirement, R10, have been removed in the revised standard.		
John Kerr; GRDA	no	
Gordon Rawlings; BCTC (1)	Yes/no	BCTC agrees the measures are worded appropriately for the Requirements as written. BCTC and others will be requesting changes to the Requirements which will require corresponding changes in some wording of the Measures. We would expect the measures would change with any changes to the requirements that come from industry suggestions.
Response: The SPT SDT agrees and have re-evaluated/modified the Requirements and Measures.		
MRO (1,2)	yes	The MRO recommends that the SDT review M5 in the event R5 changes, in order for M5 to remain consistent with any changes made to R5.
Response: M5 and the associated requirement, R5, have been removed from the revised standard.		
Hydro One Networks (1)	Yes/no	Although agreeing with the need of Measures in general, there are some that may pose unnecessary documentation burden to entities. For example, M3 can be satisfied by use of an annual employee performance review without the need of creating an additional document to demonstrate compliance. Also, in M11, providing results of the annual review does not prove that an entity is modifying training as per their findings.
Response: M3 has been modified to reflect a needs analysis by position not individual. M11 and the associated requirement, R9, have been removed from the revised requirement.		
Alan Adamson; NYSRC (2)	Yes/no	Agree with 1, 2, 3, 5 and 11. Disagree with 4, 6-10 and 12 4-See comments on Q4 6-9-See comments on Q6 10-See comments on Q8

Question 12		
Commenter		**Comment**
		12-See comments on Q10 and Q19
Response: M1 has been modified to reflect the revised R1 focusing on the outcomes of the SAT process. M2 and M3 have been combined into one measure that requires evidence of the latest assessment for each position, not for each System Operator. M4 and the associated requirement, R4, have been removed from the revised standard. M5 and the associated requirement, R5, have been removed from the revised standard. M6 and M7 and the associated requirement, R6, have been removed from the revised standard. M8 and the associated requirement, R6, have been removed from the revised standard. M9 and the associated requirement, R7, have been removed from the revised standard. M10 and the associated requirement, R8, have been removed in the revised standard. M11 and the associated requirement, R9, have been removed from the revised standard. M12 and the associated requirement, R10, have been removed in the revised standard.		
WECC OTS (1,2)	Yes/no	OTS agrees the measures are worded appropriately for the Requirements as written. Of course OTS and others are requesting changes to the Requirements which will require corresponding changes in some wording of the Measures.
Response: The Requirements and Measures have been re-evaluated and changed for this posting of the standard.		
Duke Energy (G1) (1)	yes	Yes, the measures, although complex and interdependent, match the requirements as drafted. However, most, if not all, of the requirements need work which, in turn, will cause the measures to be revised accordingly.
Response: The SPT SDT agrees. The Requirements and Measures have been re-evaluated and changed for this posting of the standard.		
William J. Smith; Allegheny Power (1)	yes	We agree with the Measures to the extent that they agree with our comments to the Requirements.
Response: The SPT SDT agrees. The Requirements and Measures have been re-evaluated and changed for this posting of the standard.		
Dale Wadding; Dairyland Power Cooperative (5)	yes	
Will Franklin; Entergy (6)	yes	
John Bussman:AECI (1,5,6)	yes	
Jim Gunnell; SPP (2)	yes	
Gerald LaRose; NYPA (1)	yes	
James Hinson; ERCOT (2)	yes	

Question 12		
Commenter		**Comment**
FirstEnergy (1,3,5,6)	yes	

13. Do you agree with Compliance Monitoring section of the standard?

Summary Consideration:

Some commenters expressed concern with the use of spot check audits and triggered evaluations, as well as the frequency of self certification. The majority of the responses agreed with the Compliance Monitoring section of the standard. The SPT SDT has removed the self-certification, spot check, periodic audit and the triggered investigations statements in the Compliance Monitoring and Reset section and included these methods in Section 1.4, Additional Compliance Information. The NERC Compliance Monitoring and Enforcement Program, approved by FERC, addresses each method listed for determining compliance. Per the delegation agreements, the regional entities must include each of these methods in its compliance program. Inclusion of these methods provides the registered entity information on various methods used to determine compliance with this standard.

Question 13		
Commenter		**Comment**
Marion Lucas; Alcoa Power Generating, Inc (1)	no	See comments in 12.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		
Kathleen Goodman; ISO-NE (2)	no	See response to question 19
Response: The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for system operators that meets minimum standards may incur additional cost. The SPT SDT has significantly revised the standard based on industry feedback.		
PJM (2)	no	See response to question 19
Response: The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for system operators that meets minimum standards may incur additional cost. The SPT SDT has significantly revised the standard based on industry feedback.		
ISO/RTO Council (2)	no	See response to question 19
Response: The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost. The SPT SDT has significantly revised the standard based on industry feedback.		
Mark Bennett; Gainesville Regional Utilities (5)	no	I believe that entities need a training program, and must have one for compliance. I don't believe that all the requirements and measurements are necessary to have a comptent operator. This is mostly back office work for tracking purposes. Again PER 002 should suffice.

Question 13		
Commenter		**Comment**
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		
Brian Tuck; BPA (1)	no	The RRO is identified as the Compliance Monitor for the Standard. The Compliance Monitoring Period and Reset section lists all the potential methods the RRO may use to monitor compliance. BPA recommends Self-certification, Periodic Audit (required 3-year compliance audit, not the readiness audit), and Triggered Investigations. The Data Retention requirements are more detailed than necessary and BPA recommends a simple requirement for all training documentation and records to be retained for three-years, similar to the requirement of the NERC CE Program.
Response: The SPT SDT has removed the self-certification, spot check, periodic audit, and the triggered investigations statements in the Compliance Monitoring and Reset section and added these methods to Section 1.4, Additional Compliance Information. The NERC Compliance Monitoring and Enforcement Program (CMEP), approved by FERC, addresses each method listed for determining compliance. Per the delegation agreements, the regional entities must include each of these methods in its compliance program. Details on these compliance monitoring methods can be found on the NERC website, Compliance and Section 3.0 of the CMEP document. "The Compliance Enforcement Authority will monitor, assess, and enforce compliance with Reliability Standards using eight (8) monitoring processes to collect information in order to make assessments of compliance: (1) Compliance Audits, (2) Self-Certifications, (3) Spot Checking, (4) Compliance Violation Investigations, (5) Self-Reporting, (6) Periodic Data Submittals, (7) Exception Reporting, and (8) Complaints." Inclusion of these methods provides the registered entity information on various methods used to determine compliance with this standard. Only the compliance monitoring methods applicable to this standard have been included in the revised standard. The term "triggered investigations has been removed and replaced with the term "investigations" to more closely match the language used in the CMEP. Section 1.3 Data Retention has been changed to reflect data retention specifications for all requirements of four years or since its most recent on-site compliance audit, whichever is greater. This data retention will allow an entity to provide evidence of compliance for all years in-between formal compliance audits.		
WECC RCCWG (1,2)	no	I do not agree with the Triggered Investigations. There is no recourse provided for entities that are accused of non compliance. There is no appeal process. Who is allowed to call for a Triggered Investigation? This section is too vague and onerous.
Response The NERC Compliance Monitoring and Enforcement Program (CMEP), approved by FERC, addresses each method listed for determining compliance. Per the delegation agreements, the regional entities must include each of these methods in its compliance program. Details on these compliance monitoring methods can be found on the NERC website, Compliance and Section 3.0 of the CMEP document. "The Compliance Enforcement Authority will monitor, assess, and enforce compliance with Reliability Standards using eight (8) monitoring processes to collect information in order to make assessments of compliance: (1) Compliance Audits, (2) Self-Certifications, (3) Spot Checking, (4) Compliance Violation Investigations, (5) Self-Reporting, (6) Periodic Data Submittals, (7) Exception Reporting, and (8) Complaints." Inclusion of these methods provides the registered entity information on various methods used to determine compliance with this standard. Only the compliance monitoring methods applicable to this standard have been included in the revised standard. The term "triggered investigations has been removed and replaced with the term "investigations" to more		

Question 13		
Commenter		**Comment**
closely match the language used in the CMEP. An investigation may be initiated in response to a system disturbance, Complaint, or possible violation of a Reliability Standard identified by any other means. Per the CMEP, all entities have the right for due process, regardless of the type of compliance monitoring method used.		
SRP (1)	no	The process of Triggered Investigations needs to be further refined and defined. One entity could cause another entity a great deal of work and cost by submitting multiple complaints or allegations. What if any recourse does the accused party have available to them? There should at least be an appeal process. Who is allowed to call for a Triggered Investigation? This section is too vague and could become onerous.
Response: The NERC Compliance Monitoring and Enforcement Program (CMEP), approved by FERC, addresses each method listed for determining compliance. Per the delegation agreements, the regional entities must include each of these methods in its compliance program. Details on these compliance monitoring methods can be found on the NERC website, Compliance and Section 3.0 of the CMEP document. "The Compliance Enforcement Authority will monitor, assess, and enforce compliance with Reliability Standards using eight (8) monitoring processes to collect information in order to make assessments of compliance: (1) Compliance Audits, (2) Self-Certifications, (3) Spot Checking, (4) Compliance Violation Investigations, (5) Self-Reporting, (6) Periodic Data Submittals, (7) Exception Reporting, and (8) Complaints." Inclusion of these methods provides the registered entity information on various methods used to determine compliance with this standard. Only the compliance monitoring methods applicable to this standard have been included in the revised standard. The term "triggered investigations has been removed and replaced with the term "investigations" to more closely match the language used in the CMEP. An investigation may be initiated in response to a system disturbance, Complaint, or possible violation of a Reliability Standard identified by any other means. Per the CMEP, all entities have the right for due process, regardless of the type of compliance monitoring method used.		
Ron Gunderson; NPPD (1) MISO (1,6) Robert Coish; MEHB (1, 3, 5, 6)	no	This needs to be simplified. We're not sure why there would be spot checks and triggered investigations for training. This standard can be evaluated during the normal audit and self-certification cycle.
Response: The NERC Compliance Monitoring and Enforcement Program(CMEP), approved by FERC, addresses each method listed for determining compliance. Per the delegation agreements, the regional entities must include each of these methods in its compliance program. Details on these compliance monitoring methods can be found on the NERC website, Compliance and Section 3.0 of the CMEP document. "The Compliance Enforcement Authority will monitor, assess, and enforce compliance with Reliability Standards using eight (8) monitoring processes to collect information in order to make assessments of compliance: (1) Compliance Audits, (2) Self-Certifications, (3) Spot Checking, (4) Compliance Violation Investigations, (5) Self-Reporting, (6) Periodic Data Submittals, (7) Exception Reporting, and (8) Complaints." Inclusion of these methods provides the registered entity information on various methods used to determine compliance with this standard. Only the compliance monitoring methods applicable to this standard have been included in the revised standard. Spot checks may be used to confirm self-certification, may be random or may be initiated in response to events, or by operating problems, or system events. The term "triggered investigations has been removed and replaced with the term "investigations" to more closely match the language used in the CMEP..		

Question 13		
Commenter		**Comment**
John Bussman:AECI (1,5,6)	no	don't agree with requirement 1
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirements such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
Michael Scott; APS (1,5)	no	The annual self-certification is too frequent. Conducting a thorough self-assessment 18 months following the triennial audit would be effective. This would provide a "halfway point" snapshot of program progress between the audits.
Response The NERC Compliance Monitoring and Enforcement Program(CMEP), approved by FERC, addresses each method listed for determining compliance. Per the delegation agreements, the regional entities must include each of these methods in its compliance program. Details on these compliance monitoring methods can be found on the NERC website, Compliance and Section 3.0 of the CMEP document. For all requirements that do not require more frequent self-certification, a yearly self-certification will be used.		
John Kerr; GRDA	no	The self-certification would be more in line for every 3 years or when standards change.
Response: The NERC Compliance Monitoring and Enforcement Program (CMEP), approved by FERC, addresses each method listed for determining compliance. Per the delegation agreements, the regional entities must include each of these methods in its compliance program. Details on these compliance monitoring methods can be found on the NERC website, Compliance and Section 3.0 of the CMEP document. For all requirements that do not require more frequent self-certification, a yearly self-certification will be used.		
Michael Gammon; KCP&L (1)	no	The performance reset period seems a bit harsh. Are there any standards that have a flexible reset period?
Response: The reset period of one month was under the direction of FERC and the SPT SDT cannot change this component of compliance.		
Matthew Santos; SDE&G	no	When you notify an entity that they will be audited will you also at that time tell them what they will be audited on or will it be a full blown compliance audit? If someone notifys you that we are in noncompliance did you get proof from that entity before proceeding with investigation?
Response: Each entity will be notified by its regional entity at a minimum of 60 days in advance to an on-site audit. Included in this notification, is the scope of the audit, i.e., which NERC and regional standards will be reviewed. Annually, the regional entities and NERC compliance staff determine which standards will be included in the actively monitored standards. These are the standards, which at a minimum will be part of the onsite audit for all regions. The regional entity will notify the entity of any investigations at which time the will be asked to provide evidence. Per the Compliance Monitoring and Enforcement Program (CMEP), approved by FERC, all entities have the right for due process, regardless of the type of compliance monitoring method used. Details on these compliance monitoring methods as well as all other aspects concerning Compliance Monitoring and Enforcement program can be found on the NERC website, Compliance and Section 3.0		

Question 13		
Commenter		**Comment**
of the CMEP document. This document has been approved by FERC.		
Duke Energy (G1) (1)	no	Not completely, no. Compliance monitoring should be consistent across the regions.
Response: This is beyond the scope of this standard. However, the purpose of industry standards development is to achieve consistency. The application of the compliance monitoring is consistent across the regions. Per the regional delegation agreements approved by FERC, each region must implement the compliance process as outlined in the NERC Compliance Monitoring and Enforcement Program (CMEP), also approved by FERC. Details on these compliance monitoring methods as well as all other aspects concerning the CMEP can be found on the NERC website, Compliance, CMEP document, Section 3.0. The compliance elements increase consistent application of the standards.		
Allan George; Sunflower (1)	no	Review need only entail list of operators, credentials, and outline of program and progress in program
Response: The comment does not provide enough information to accurately address. An operator's certification credential and its maintenance are outside the scope of this standard. Each Compliance Enforcement Authority will judge compliance to the requirements in the standard to perform compliance audits. The entity must retain evidence of compliance to each requirement of this standard.		
Richard Krajewski; Public Service Co of NM (1)	no	The Data Retention requirements are more detailed than necessary and PNM recommends a simple requirement for all training documentation and records to be retained for three-years, similar to the requirement of the NERC CE Program.
Response: Section 1.3 Data Retention has been changed to reflect data retention specifications for all requirements of 4 years or since its most recent on-site compliance audit, whichever is greater. This data retention will allow an entity to provide evidence of compliance for all years between formal compliance audits.		
Ron Falsetti; IESO (2)	no	Same as above.
Response: There is insufficient information for the Training Standard Drafting Team to respond to this comment. Future comments should provide a specific reason(s) for the objection such that the Training Standard Drafting Team has an opportunity to respond.		
Santee Cooper (G2)	no	It is impractical to evaluate the Compliance Monitoring section until we have a clear understanding of the Requirements in this standard.
Response: The requirements, as well as the Compliance Monitoring section have been revised based on stakeholder comments. Specifically the following changes have been made to the requirements: Eliminated the individual requirements for each of the phases of the SAT process (R1, R4, R6, and R9) and replaced these with a revised R1 that necessitates using the SAT process to develop the required training. Consolidated R2 and R3 that addressed assessing training needs for entry-level or newly hired experienced System Operators and incumbent system operators into one requirement, revised R2, which is applicable to positions, not individuals, as well eliminated the distinction between entry-level, incumbent, and newly hired experienced System Operators.		

Question 13		
Commenter		**Comment**
Eliminated the requirement for verification of qualifications for persons developing or delivering training (R5). Eliminated the requirement for providing details of training activities (R7) Eliminated the requirement addressing the maintenance of the System Operator training program (R10).		
Dan Kay; South Mississippi EPA (4)	no	
WECC OTS (1,2) Gordon Rawlings; BCTC (1)	Yes/no	The RRO is identified as the Compliance Monitor for the Standard. The Compliance Monitoring Period and Reset section lists all the potential methods the RRO may use to monitor compliance. OTS recommends Self-certification, Period Audit (required 3-year compliance audit, not the readiness audit), and Triggered Investigations. The Data Retention requirements are more detailed than necessary and OTS (BCTC) recommends a simple requirement for all training documentation and records to be retained for three-years, similar to the requirement of the NERC CE Program.
Response: The SPT SDT has moved the self-certification, spot check, periodic audit and the triggered investigations statements in the Compliance monitoring and Reset section to Section 1.4, Additional Compliance Information. The NERC Compliance Monitoring and Enforcement Program (CMEP), approved by FERC, address each method listed for determining compliance. Per the delegation agreements, the regional entities must include each of these methods in its compliance program. Details on these compliance monitoring methods can be found on the NERC website, Compliance and Section 3.0 of the CMEP document. "The Compliance Enforcement Authority will monitor, assess, and enforce compliance with Reliability Standards using eight (8) monitoring processes to collect information in order to make assessments of compliance: (1) Compliance Audits, (2) Self-Certifications, (3) Spot Checking, (4) Compliance Violation Investigations, (5) Self-Reporting, (6) Periodic Data Submittals, (7) Exception Reporting, and (8) Complaints." Inclusion of these methods provides the registered entity information on various methods used to determine compliance with this standard. Only the compliance monitoring methods applicable to this standard have been included in the revised standard. The term "triggered investigations has been removed and replaced with the term "investigations" to more closely match the language used in the CMEP. Section 1.3 Data Retention has been changed to reflect data retention specifications for all requirements of 4 years or since its most recent on-site compliance audit, whichever is greater. This data retention will allow an entity to provide evidence of compliance for all years between formal compliance audits.		
NPCC CP9 (1, 2)	yes	NPCC Participating members have expressed some disagreement with the Requirements as written so the measures are in question as well.
Response: The Requirements and Measures have been re-evaluated and changed for this posting of the standard.		
CJ Ingersoll; CECD (3)	yes	
Dale Wadding; Dairyland Power Cooperative (5)	yes	
Ed Davis; Entergy Services (1)	yes	

Question 13		
Commenter		**Comment**
FRCC SO Subcommittee (1,2,5)	yes	
SCE&G ERO WG (1, 3, 5)	yes	
MRO (1,2)	yes	
FPL (1,3,5)	yes	
Jason Shaver; ATC (1)	yes	
William J. Smith; Allegheny Power (1)	yes	
TVA (1)	yes	
SPP OTWG (1,2)	yes	
Michael Clime; Ameren	yes	
Southern Co (1,3,5,6)	yes	
Pepco Holdings (1)	yes	
Will Franklin; Entergy (6)	yes	
Jim Sorrels; AEP (1)	yes	
Jim Gunnell; SPP (2)	yes	
Howard Rulf; WeEnergies (3,4,5)	yes	
Roger McBeth; Northeast Utilities (1)	yes	
James Hinson; ERCOT (2)	yes	
Alan Adamson; NYSRC (2)	yes	
Allen Klassen; Westar (1)	yes	
Brian Thumm; ITC (1)	yes	
Hydro One Networks (1)	yes	
FirstEnergy (1,3,5,6)	yes	

14. Please identify any Regional Differences that you feel should be included in this standard.

Summary Consideration:

The Standard Drafting Team agrees that there are no regional differences (now called Regional Variances) with the drafted standard PER-005. Training specific to any Region that is needed by a Functional Entity should be included in the training programs developed for that Functional Entity.

Question 14	
Commenter	**Comment**
SRP (1)	No known Regional Differences Is this standard the proper place to insert the WECC CEH requirement of 10 CEH of WECC-specific topics every 2 years?
Response: This standard is not the appropriate place to include specific requirements such as the WECC specific training topics. Any specific items WECC desires to impose on its members should be included in the training plans developed by the WECC and its members.	
Duke Energy (G1) (1)	No known Regional Differences. If the standard is not too detailed and prescriptive, no regional differences will be needed.
Response: The SPT SDT agrees.	
Will Franklin; Entergy (6)	No known Regional Differences
Tim Hattaway; Alabama Electric Coop (5)	No known Regional Differences
Ron Gunderson; NPPD (1)	No known Regional Differences
John Bussman:AECI (1,5,6)	No known Regional Differences
John Kerr; GRDA	No known Regional Differences
Jim Sorrels; AEP (1)	No known Regional Differences
Howard Rulf; WeEnergies (3,4,5)	No known Regional Differences
Gerald LaRose; NYPA (1)	No known Regional Differences
NPCC CP9 (1, 2)	No known Regional Differences
Roger McBeth; Northeast Utilities (1)	No known Regional Differences
Allan George; Sunflower (1)	No known Regional Differences
Ron Falsetti; IESO (2)	No known Regional Differences
Gordon Rawlings; BCTC (1)	No known Regional Differences
James Hinson; ERCOT (2)	No known Regional Differences
Hydro One Networks (1)	No known Regional Differences
FirstEnergy (1,3,5,6)	No known Regional Differences

Question 14	
Commenter	**Comment**
Alan Adamson; NYSRC (2)	No known Regional Differences
Allen Klassen; Westar (1)	No known Regional Differences
Brian Thumm; ITC (1)	No known Regional Differences
Brian Tuck; BPA (1)	No known Regional Differences
Southern Co (1,3,5,6)	No known Regional Differences.
Michael Scott; APS (1,5)	No known Regional Differences.
WECC OTS (1,2)	No known Regional Differences.
Michael Clime; Ameren	No known Regional Differences.
Matthew Santos; SDE&G	No known Regional Differences.
Mark Bennett; Gainesville Regional Utilities (5)	No known Regional Differences.
Kathleen Goodman; ISO-NE (2)	No known Regional Differences.
Richard Krajewski; Public Service Co of NM (1)	No known Regional Differences.
SPP OTWG (1,2)	No known Regional Differences.
WECC RCCWG (1,2)	No known Regional Differences.
PJM (2)	No known Regional Differences.
MRO (1,2)	No known Regional Differences.
MISO (1,6)	No known Regional Differences.
FPL (1,3,5)	No known Regional Differences.
Jason Shaver; ATC (1)	No known Regional Differences.
William J. Smith; Allegheny Power (1)	No known Regional Differences.
TVA (1)	No known Regional Differences.
Michael Gammon; KCP&L (1)	No known Regional Differences.
ISO/RTO Council (2)	No known Regional Differences.
FRCC SO Subcommittee (1,2,5)	No known Regional Differences.
SCE&G ERO WG (1, 3, 5)	No known Regional Differences.
Santee Cooper (G2)	No known Regional Differences.
Ed Davis; Entergy Services (1)	No known Regional Differences.

Question 14	
Commenter	**Comment**
Marion Lucas; Alcoa Power Generating, Inc (1)	No known Regional Differences.
Edward J. Carmen; Baltimore Gas & Electric (1)	No known Regional Differences.
CJ Ingersoll; CECD (3)	No known Regional Differences.
Dale Wadding; Dairyland Power Cooperative (5)	No known Regional Differences.

15. Do you agree with the proposed Implementation Plan?

Summary Consideration:

Most commenters did not agree with the proposed Implementation Plan, expressing concern with the proposed implementation time. Based on stakeholder feedback, the implementation plan has been lengthened to three years and the specific dates were removed.

Question 15		
Commenter		**Comment**
WECC OTS (1,2)		The implementation plan was not posted with the Standard but was posted afterwards. While OTS has not had time to evaluate and make recommendations on the implementation plan, we do recommend all specific dates be removed. The plan notes the dates slide with the approval date of the Standard but OTS believes the approximate dates will do more to confusion the issue than to help.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Dale Wadding; Dairyland Power Cooperative (5)	no	The Implementation Plan states that several reference documents will be issued to assist in compliance with the Standard but fails to establish a timeline for their release. These documents should be available as soon as possible and workshops should be scheduled to assist entities with compliance.
Response: The SPT SDT has provided a Generic Task List, as well as a reference document with the revised standard The SPT SDT will consider conducting a workshop.		
Southern Co (1,3,5,6)	no	Southern does not believe the proposed standard is necessary, especially as written. Therefore, we do not believe an Implementation plan is needed.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost.		
Marion Lucas; Alcoa Power Generating, Inc (1)	no	As above, the entire standard is duplicative, intrusive and overstepping in its bounds. It should be eliminated.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost.		
CJ Ingersoll; CECD (3)	no	The current draft should be revised and a new implementation plan drafted to fit the amended draft.
Response: The SPT SDT recognizes modifications to the proposed standard may have an impact on the implementation plan and has posted a new implementation plan with the revised draft of the		

Question 15		
Commenter		**Comment**
standard.		
Ron Falsetti; IESO (2)	no	Please see comments in Q19.
Response: The SPT SDT agrees that the element identified is important and are encompassed in the revised standard. The SPT SDT has significantly revised the standard based on industry feedback. The standards addresses the core SAT phases. The SPT SDT agrees with the comment that only specific tasks that are considered critical to reliability should be considered and has revised the requirement to include analysis that considers only reliability-related tasks by System Operator positions. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT has combined R2 and R3 and removed R4, R5, R6, R7, R8, R9, and R10 from the revised standard.		
Kathleen Goodman; ISO-NE (2)	no	See response to question 19
Response: The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost. The SPT SDT has significantly revised the standard based on industry feedback.		
PJM (2)	no	See response to question 19
Response: The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost. The SPT SDT has significantly revised the standard based on industry feedback.		
ISO/RTO Council (2)	no	See response to question 19
Response: The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost. The SPT SDT has significantly revised the standard based on industry feedback.		

Question 15		
Commenter		**Comment**
Gerald LaRose; NYPA (1)	no	The proposed Standard is an admittedly "complex standard with many requirements" and the Responsible Entities will require time and resources to examine their current practices, complete the requisite analyses and implement the programs to meet the Requirements of these Standards. An Implementation Schedule akin to that required for CIP-002 through CIP-009, i.e., varying degrees of parallel (as opposed to serial) compliance with specific milestones (Begin Work, Substantially Compliant, Compliant, Auditably Compliant applied to all Requirements at the same time as opposed to strict Auditable Compliance for each grouping within the serial stages) over four years rather than two. Many budgets for 2007 are already locked-in and the first serial stage in particular (R1, R2, R3) will be costly.
Response: The SPT SDT understands the cost implications as a result of the approval of this standard, however, there is an urgent priority placed on the industry by the Electric Reliability Organization and FERC to develop training programs that provide the basis to ensure quality and effective training and that are audit consistent.		
FRCC SO Subcommittee (1,2,5)	no	We appreciate the significant effort that went into the current draft of PER-005-1. As stated previously, for future flexibility of the "training" standards, we would encourage the drafting team to re-evaluate its creation of the "new" standard. We would suggest rolling in the appropriate requirements (JTA concept and the other requirements into the existing training standards (PER-002 applicable to BAs and TOPs and PER-004 applicable to RCs)). The requirements may be duplicated as necessary in both standards, but preservation of the individual standards would allow the flexibility to create appropriate requirements and improvements to the standards without having to address ALL stakeholders affected by the standard. It is difficult to justify that the same training requirements should be applied to a 100 MW (peak load) Balancing Authority as to a Reliability Coordinator that evaluates the wide area view of a 45,000 MW system. Simply, this would allow flexibility for the industry to evaluate future training requirements that could enhance Interconnection reliability and apply them with a higher degree of precision and appropriateness.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The drafting team made significant changes to the requirements in the standard, and believes the revised requirements are equally applicable to the Reliability Coordinator, Transmission Operator and Balancing Authority so the requirements have been retained in a single standard.		
FPL (1,3,5)	no	We appreciate the significant effort that went into the current draft of PER-005-1. As stated previously, for future flexibility of the "training" standards, we would encourage the drafting team to re-evaluate its creation of the "new" standard. We would suggest rolling in the appropriate requirements (JTA concept and the other requirements into

Question 15		
Commenter		**Comment**
		the existing training standards (PER-002 applicable to BAs and TOPs and PER-004 applicable to RCs)). Simply, this would allow flexibility for the industry to evaluate future training requirements that could enhance Interconnection reliability and apply them with a higher degree of precision and appropriateness.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The drafting team made significant changes to the requirements in the standard, and believes the revised requirements are equally applicable to the Reliability Coordinator, Transmission Operator and Balancing Authority so the requirements have been retained in a single standard.		
Matthew Santos; SDE&G	no	I believe more time 4 to 5 years is needed for all entities to get it done right. So a phasing in period would be the best approach. But more dialog is needed, we do not need to rush into this half cocked.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Jason Shaver; ATC (1)	no	ATC does not agree with the implementation schedule with the proposed standard as written. ATC strongly recommends that the implementation schedule be extended for an additional one to two years based upon the way the standard is currently written. Phase 1 should be 18-24 months Phase 2 should be 24-36 months Phase 3 should be 36-48 months ATC may agree with the implementation schedule as is if the SDT modifies the requirements in accordance with ATC's recommendations.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Pepco Holdings (1)	no	Phase I is permitted and could take up to one year to complete. Phase II will most likely be dependant on completion of Phase I. Extend Phase II and Phase III each by six months, extending the entire schedule to December 31, 2009.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed. The time lines and phases have been adjusted.		
Ed Davis; Entergy Services (1)	no	The Implementation Plan references standard PER-004-1. If there is an approved PER-004-1 it is not on the NERC standards website. There is an approved standard PER-004-0. We suggest the Phased Implementation Period be over 3 years rather than the 2 years indicated. The following statement is contained in the discussion of PER-004-1 R3 and R4 - In addition, one of the purposes of

Question 15		
Commenter		**Comment**
		requirement R6.4.2. in this standard is to develop a Reliability Coordinator's knowledge of other entities in the Reliability Coordinator's area. Should the reference to R6.4.2 actually be R6.5.2? The Applicability section contains a statement about System Operators under contract or delegation agreement. Please see our suggested changes contained our response to Question 19 in this document, including our concerns regarding Sytsem Operators under contract or System Operators performing tasks identified in R1 under delegation agreement.
Response: The drafting team posted a proposed revision to PER-004 showing suggested retirement of most of the requirements. The new version of PER-004 will be PER-004-1. Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Jim Sorrels; AEP (1)	no	No. AEP does not agree with the proposed implementation plan. AEP recommends a phased implementation approach over a 3-year period. Compliance to Requirements 1-3 should start 18 months after FERC approval, compliance to Requirements 4-7 should begin after 30 months, and compliance to Requirements 8-10 should begin after 36 months. Additionally, AEP disagrees with the retiring of PER-004-1 Requirements 3 and 4 upon implementation of this proposed standard. The drafting team incorrectly assumes the job task analysis for a Reliability Coordinator's System Operators would obviously include these requirements as tasks to be performed by a Reliability Coordinator. But if the NERC Standards do not have a requirement such as PER-004-1 R3 and R4, then why would they include this in their job task analysis? It would be a step backward for reliability to assume that every entity has the same interpretation of what an entity is to do and not to do. If we could make this assumption, then we wouldn't need Mandatory Standards. AEP can only support the retiring all of PER-004-1 if the drafting team can show where else in the NERC Standards an RC is required to perform what is contained in PER-004-1 R3 and R4.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed. Please see the revised implementation plan which includes a table showing the disposition of each requirement recommended for retirement in PER-004-1. The implementation plan proposes retiring PER-004 R3 and R4 when PER-005-1 Requirements 1 and 4 become effective. The drafting team believes that a training program that is developed following the SAT process that addresses all reliability-related tasks assigned to a reliability coordinator will address the topics covered in PER-004 R3 and R4.		
William J. Smith; Allegheny Power (1)	no	Too aggressive for the standard in it's present form. All phases of the Implementation Plan should be extended by 12 months.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three		

Question 15		
Commenter		**Comment**
years and the dates were removed.		
Duke Energy (G1) (1)	no	In the current draft, the implementation plan is too short. If the requirements are re-written to be less prescriptive and detailed, a two year plan may be workable.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
WECC RCCWG (1,2)	no	Much too aggressive. Entities are still struggling with Emergency and CEH training requirements. The implementation should be extended to give eitities time to prepare for these requirements.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
SPP OTWG (1,2)	no	If the standard is implemented as is, it would require additional training staff and the purchase of an LMS, which would make the implementation unrealistic. All of these requirements should begin on January 1 so that compliance is consistent for the year. We would prefer to see some examples of quality JTAs. We believe it's necessary to have some benchmark standards that can be used across the industry.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed. Any proposed standard is dependent upon jurisdictional regulatory approval and it is unlikely that all regulatory approvals will be achieved in the same time frame.		
Michael Clime; Ameren	no	The plan is to aggressive especially if some of the training is not thoroughly developed at the current time. A lot of companies will be required to hire another Trainer just to do development work and record keeping.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
SCE&G ERO WG (1, 3, 5)	no	Twelve months is not enough time unless a standard list of " reliability related task" and agreement by the industry of minimun requirments as associated with these task as it applies to R1.1 through R1.7 can be provided.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed. The SPT SDT has included a Generic Task List in the revised standard.		
Santee Cooper (G2)	no	Twelve months may not be a reasonable length of time for many companies depending on the expectations of a JTA and whether it is applicable to all tasks or tools or changes to all tasks and tools. The Phase II and Phase III implementation dates may be ok if the first implementation date for the JTA is extended significantly.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		

Question 15		
Commenter		**Comment**
Will Franklin; Entergy (6)	no	R6.5 on "EOPs" should be implemented immediately since the industry is currently held to this requirement under a memo issued after the 2003 blackout. PER-002 already requires this training. If PER-002 is eliminated by this standard then R6.5 should become effective immediately. Also, the implementation plan proposes to retire PER-004 and states that PER-004 R1 is duplicated in PER-003. This is not completely true. PER-004 R1 states that the RC will be staffed 24/7, but PER-003 just states that the operators will be NERC Certified. Later in the Measures it states it will be staffed "at all times". PER-003 should be modified if PER-004 is to be eliminated.
Response: The SPT SDT Team has revised the implementation timeline with the revised draft of the standard that addresses the immediate implementation of EOP hour requirements and PER-004. Your comments on the inconsistency between PER-004 R1 and PER-003 are correct and the Implementation Plan has been revised accordingly. Your comment on PER-004 R1 needing to remain in PER-004 is also correct and this is reflected in the Implementation Plan.		
SRP (1)	no	The sheer volume of documentation that this Standard will require will take a lot of time. Many entities are already struggling to meet the training hour requirements. This would further tax resources that are already fully subscribed. The implementation plan is much too aggressive and should be extended to give entities time to prepare for these requirements. At a minimum the implementation plan should consider the burden expected by the new standard for support personnel.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
John Bussman: AECI (1,5,6)	no	We agree that some of the other training design requirements should be retired if this standard is adopted. This standard should be simplified prior to implmentation. Also the two-year implementation plan might be too short to put all this detail in a training program.
Response: The SPT SDT has revised the standard based on stakeholder feedback. The implementation plan has been lengthened to three years and the dates were removed.		
John Kerr; GRDA	no	The implementation as is would be a considerable expense for everyone. Examples and explanations should be give first.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed. Additional information on your request for examples and explanations is needed to respond to this comment.		

Question 15		
Commenter		**Comment**
Roger McBeth; Northeast Utilities (1)	no	If NERC only provides a generic task list, organizations will not be able to complete a company specific task list and support a company specific job task analysis that meets the requirements of R.1.1 thru R.1.7 in one year with available resources. Organizations can not support the requirements of their existing Initial and Continuing Training Programs and complete a manpower intensive Job Analysis/Task Analysis at the same time. Most organizations do not have a training staff with the experience necessary to perform a Job Task Analysis. This will require organizations to seek contractor support to complete the requirement in that amount of time. If all utilities seek contractor support to complete their JTAs within the one year there will be a huge vacuum created by the lack of contractors to support this effort. A company specific job task analysis will also require the involvement of subject matter experts which means additional demands on your system operator's time. Organizations will be challenged to free up operators to serve as subject matter experts (SME) in support of a company specific JTA.
Response: Based on stakeholder feedback, the Implementation Plan has been lengthened to three years and the dates were removed. The drafting team is posting a list of references that may provide assistance so that entities can conduct their own analysis.		
Hydro One Networks (1)	no	Preparation for compliance with this Standard represents considerable work. The Implementation Plan should give more time to become auditable compliant.
Response: Based on stakeholder feedback, the Implementation Plan has been lengthened to three years and the dates were removed.		
Allen Klassen; Westar (1)	no	Not giving enough time to meet the new requirements (lots of development and creating excessive documentation will have to be done) and should not make ANY requirement effective mid-year. Suggest effective dates of 1/1/2009 for R1 - R7 and 1/1/2010 for R8 - R10 at the earliest.
Response: Based on stakeholder feedback, the Implementation Plan has been lengthened to three years and the dates were removed. Any proposed standard's effective date is dependent upon jurisdictional regulatory approval.		
Brian Thumm; ITC (1)	no	The two-year implementation plan is too short to develop the comprehensive documentation required by the proposed standard. Requirement R7 will be the most demanding, and at a minimum, it should be moved into Phase 3 in order to allow for a few extra months to complete it.
Response: Based on stakeholder feedback, the Implementation Plan has been lengthened to three years and the dates were removed.		
Allan George; Sunflower (1)	no	
Dan Kay; South Mississippi EPA (4)	no	

Question 15		
Commenter		**Comment**
Mark Bennett; Gainesville Regional Utilities (5)	no	
Ron Gunderson; NPPD (1)	Yes/no	
Richard Krajewski; Public Service Co of NM (1)	Yes/no	See response to #18
Response: The SPT SDT has reviewed the comment that the implementation timeline should be extended and has revised the Implementation Plan to reflect an implementation timeline of 2 to 3 years and removed all specific dates. The SPT SDT has revised the implementation timeline with the revised draft of the standard.		
MISO (1,6)	Yes/no	We agree that some of the other training design requirements should be retired if this standard is adopted. This standard should be simplified prior to implmentation. Also the two-year implementation plan might be too short to put all this detail in a training program.
Response: The SPT SDT has modified the standard based on stakeholder feedback. Based on stakeholder feedback, the Implementation Plan has been lengthened to three years and the dates were removed.		
Michael Gammon; KCP&L (1)	yes	I agree with the plan components, however, I think the implementation time frame is bit aggressive for most entities.
Response: Based on stakeholder feedback, the Implementation Plan has been lengthened to three years and the dates were removed.		
James Hinson; ERCOT (2)	yes	How do they confirm that any implementation has taken place
Response: The confirmation is achieved through the NERC Standard Compliance process.		
Howard Rulf; WeEnergies (3,4,5)	yes	
NPCC CP9 (1, 2)	yes	
Gordon Rawlings; BCTC (1)	yes	
Robert Coish; MEHB (1, 3, 5, 6)	yes	
FirstEnergy (1,3,5,6)	yes	
TVA (1)	yes	
MRO (1,2)	yes	
Michael Scott; APS (1,5)	yes	
Alan Adamson; NYSRC (2)	yes	

16. Do you agree with the drafting team that this standard does not need to be field tested?

Summary Consideration:

Most stakeholders indicated agreement with the SPT SDT that field testing is not needed for this standard.

Question 16		
Commenter		**Comment**
Matthew Santos; SDE&G		To soon to proceed, the standard needs more ironing out.
Response: There is insufficient information for the SPT SDT to respond to this comment.		
Kathleen Goodman; ISO-NE (2) PJM (2) ISO/RTO Council (2)		The proposed standard requires more public discussion before discussing field testing needs.
Response: Most stakeholders indicated agreement with the SPT SDT that field testing is not needed for this standard.		
Richard Krajewski; Public Service Co of NM (1)	no	PNM recommends field testing should be a standard practice for all NERC Standards. Field testing reveals administrative concerns and sometimes substantive concerns that were not foreseen. All standards should be subject to at least a brief field testing period.
Response: Most stakeholders indicated agreement with the SPT SDT that field testing is not needed for this standard.		
Roger McBeth; Northeast Utilities (1)	no	The drafting team should commit to not only provide a generic task list but also a generic JTA for the generic task list. A field test may help them recognize the unreasonable demand that this standard will place on the organziations.
Response: In response to your request for examples of reliability-related tasks, the SPT SDT has included a Generic Task List in the revised standard. Most stakeholders indicated agreement with the SPT SDT that field testing is not needed for this standard.		
Gordon Rawlings; BCTC (1)	no	BCTC recommends field testing should be the practice for all NERC Standards. Field testing reveals administrative concerns and sometimes larger concerns that were not foreseen. All standards should be subject to at least a brief field testing period.
Response: Most stakeholders indicated agreement with the SPT SDT that field testing is not needed for this standard.		
Hydro One Networks (1)	no	There must be a field test to assess any impacts and adjust the standard accordingly.
Response: Most stakeholders indicated agreement with the SPT SDT that field testing is not needed for this standard.		
Brian Tuck; BPA (1)	no	BPA recommends field testing as a standard practice for all NERC Standards. Field testing reveals administrative concerns and sometimes substantive concerns that were

Question 16		
Commenter		**Comment**
		not foreseen. All standards should be subject to at least a brief field testing period.
Response: Most stakeholders indicated agreement with the SPT SDT that field testing is not needed for this standard.		
Richard Appel; Sunflower Electric Power Co (1,3,5)	no	I don't think anybody out there has enough staff on board to implement this standard. If we have a field testing period most would find that it just won't work as written.
Response: The SPT SDT has significantly revised the standard based on industry feedback. Most stakeholders indicated agreement with the SPT SDT that field testing is not needed for this standard.		
WECC OTS (1,2)	no	OTS recommends field testing should be a standard practice for all NERC Standards. Field testing reveals administrative concerns and sometimes substantive concerns that were not foreseen. All standards should be subject to at least a brief field testing period.
Response: Most stakeholders indicated agreement with the SPT SDT that field testing is not needed for this standard.		
SCE&G ERO WG (1, 3, 5)	no	A field test should be required to provide critical feedback to the industry which should save both time and money in the implementation phase and improve the compliance and audit process.
Response: Most stakeholders indicated agreement with the SPT SDT that field testing is not needed for this standard.		
Santee Cooper (G2)	no	A field test may provide critical feedback in determining realistic implementation dates, requirements, and measures.
Response: Most stakeholders indicated agreement with the SPT SDT that field testing is not needed for this standard.		
Dan Kay; South Mississippi EPA (4)	no	
FRCC SO Subcommittee (1,2,5)	no	
FPL (1,3,5)	no	
Ron Gunderson; NPPD (1) MISO (1,6)	yes	Some workshops and templates or examples of what meets the standard would be useful.
Response: The SPT SDT will consider conducting a workshop.		
John Bussman:AECI (1,5,6)	yes	However, I don't think this standard is necessary.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		

Question 16		
Commenter		**Comment**
John Kerr; GRDA	yes	Any new training standard should be field tested before implementation without penalty.
Response: Most stakeholders indicated agreement with the SPT SDT that field testing is not needed for this standard.		
Mark Bennett; Gainesville Regional Utilities (5)	yes	Not only does it not need to be field tested It need to be forgotten about. It is already covered.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		
William J. Smith; Allegheny Power (1)	yes	We agree that field testing is not necessary. However seminars and/or training material to throughly explain this standard and examples of a compliant training program are required before this standard can be implemented.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The SPT SDT will consider conducting a workshop.		
Duke Energy (G1) (1)	yes	Yes, but for a different reason -- the decision on a field test should be made on a more mature draft of the standard. The comments presented here anticipate a significant change in the next draft of this standard.
Response: The SPT SDT has significantly revised the standard based on industry feedback. During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		
Robert Coish; MEHB (1, 3, 5, 6)	yes	
Ed Davis; Entergy Services (1)	yes	
Marion Lucas; Alcoa Power Generating, Inc (1)	yes	
CJ Ingersoll; CECD (3)	yes	
Dale Wadding; Dairyland Power Cooperative (5)	yes	
Will Franklin; Entergy (6)	yes	
SPP OTWG (1,2)	yes	
WECC RCCWG (1,2)	yes	
Jason Shaver; ATC (1)	yes	
TVA (1)	yes	
Michael Gammon; KCP&L (1)	yes	

Question 16		
Commenter		**Comment**
MRO (1,2)	yes	
Tim Hattaway; Alabama Electric Coop (5)	yes	
SRP (1)	yes	
Jim Sorrels; AEP (1)	yes	
Howard Rulf; WeEnergies (3,4,5)	yes	
Gerald LaRose; NYPA (1)	yes	
NPCC CP9 (1, 2)	yes	
Allan George; Sunflower (1)	yes	
Ron Falsetti; IESO (2)	yes	
James Hinson; ERCOT (2)	yes	
FirstEnergy (1,3,5,6)	yes	
Allen Klassen; Westar (1)	yes	
Brian Thumm; ITC (1)	yes	
Southern Co (1,3,5,6)	yes	
Pepco Holdings (1)	yes	
Michael Scott; APS (1,5)	yes	
Michael Clime; Ameren	yes	

17. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

Summary Consideration:

The overall consensus from commenters is that there are no known conflicts with the purposed standard PER-005. The one sited item is the NERC Continuing Education Program. The NERC CE program and the required hours to maintain Operator certification are independent of the proposed standard PER-005. Proposed Standard PER-005 does not prevent the inclusion or the exclusion of any training that meets the needs of an organization's training program under proposed standard PER-005 and meets the CEH hour requirements to maintain Operator certification. The proposed standard PER-005 is being developed to replace PER-002 and parts of PER-004.

Question 17	
Commenter	**Comment**
NPCC CP9 (1, 2)	Conflicts with sections of PER-002.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The SPT SDT plans to recommend retiring PER-002.	
Alan Adamson; NYSRC (2)	Conflicts with sections of PER-002.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The SPT SDT plans to recommend retiring PER-002.	
Southern Co (1,3,5,6)	No known conflicts.
Pepco Holdings (1)	No known conflicts.
Michael Scott; APS (1,5)	No known conflicts.
WECC OTS (1,2)	No known conflicts.
Michael Clime; Ameren	No known conflicts.
Matthew Santos; SDE&G	No known conflicts.
Mark Bennett; Gainesville Regional Utilities (5)	No known conflicts.
Kathleen Goodman; ISO-NE (2)	No known conflicts.
Richard Krajewski; Public Service Co of NM (1)	No known conflicts.
SPP OTWG (1,2)	No known conflicts.
PJM (2)	No known conflicts.
MRO (1,2)	No known conflicts.
FPL (1,3,5)	No known conflicts.
Jason Shaver; ATC (1)	ATC believes that this proposed standard as written is duplicative and in conflict with the requirements of NERC's CE Program. The

Question 17	
Commenter	**Comment**
	SDT should align this standard with the NERC CE Program.
Response: The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.	
William J. Smith; Allegheny Power (1)	No known conflicts.
TVA (1)	No known conflicts.
Michael Gammon; KCP&L (1)	No known conflicts.
ISO/RTO Council (2)	No known conflicts.
FRCC SO Subcommittee (1,2,5)	No known conflicts.
SCE&G ERO WG (1, 3, 5)	No known conflicts.
Santee Cooper (G2)	No known conflicts.
Ed Davis; Entergy Services (1)	No known conflicts.
Marion Lucas; Alcoa Power Generating, Inc (1)	No known conflicts.
Edward J. Carmen; Baltimore Gas & Electric (1)	No known conflicts.
CJ Ingersoll; CECD (3)	No known conflicts.
Dale Wadding; Dairyland Power Cooperative (5)	No known conflicts.
Duke Energy (G1) (1)	No known conflicts.
Will Franklin; Entergy (6)	No known conflicts
SRP (1)	No known conflicts
Ron Gunderson; NPPD (1)	No known conflicts
John Bussman:AECI (1,5,6)	No known conflicts
John Kerr; GRDA	No known conflicts
Jim Sorrels; AEP (1)	No known conflicts
Howard Rulf; WeEnergies (3,4,5)	No known conflicts
Gerald LaRose; NYPA (1)	No known conflicts
Roger McBeth; Northeast Utilities (1)	No known conflicts
Allan George; Sunflower (1)	No known conflicts

Question 17	
Commenter	**Comment**
Ron Falsetti; IESO (2)	No known conflicts
Gordon Rawlings; BCTC (1)	No known conflicts
James Hinson; ERCOT (2)	No known conflicts
Hydro One Networks (1)	No known conflicts
FirstEnergy (1,3,5,6)	No known conflicts
Allen Klassen; Westar (1)	No known conflicts
Brian Thumm; ITC (1)	No known conflicts
Brian Tuck; BPA (1)	No known conflicts

18. Do you agree with the implementation plan that phases in compliance with the requirements over two years?

Summary Consideration:

This question appears to be redundant with question #15 of the Comment Form. The SDPSDT has revised the implementation plan such that the implementation timeline has been lengthened to three years and the dates were removed. Several commenters expressed the need for public discussion, workshops, etc. The SPT SDT agrees these forums are valuable and useful and will consider hosting such forum.

Question 18		
Commenter		**Comment**
WECC OTS (1,2)		The implementation plan was not posted with the Standard but was posted afterwards. While OTS has not had time to evaluate and make recommendations on the implementation plan, we do recommend all specific dates be removed. The plan notes the dates slide with the approval date of the Standard but OTS believes the approximate dates will do more to confusion the issue than to help.
Response: The SPT SDT has reviewed the comment that the implementation timeline should be extended and has revised the implementation plan to reflect an implementation timeline of up to 3 years and removed all specific dates.		
Richard Krajewski; Public Service Co of NM (1)		PNM recommend all specific dates be removed. The plan notes the dates slide with the approval date of the Standard but PNM believes the approximate dates will do more to confusion the issue than to help.
Response: The SPT SDT has reviewed the comment that the implementation timeline should be extended and has revised the implementation plan to reflect an implementation timeline up to 3 years and removed all specific dates.		
Marion Lucas; Alcoa Power Generating, Inc (1)	no	Should not be implemented at all
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		
Richard Appel; Sunflower Electric Power Co (1,3,5)	no	I don't feel that it should be implemented at all.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.		
Will Franklin; Entergy (6)	no	See comment in question # 15
Response: Based on stakeholder feedback, the Implementation plan has been lengthened to three years and the dates were removed.		
SRP (1)	no	See comments on # 15.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Santee Cooper (G2)	no	Refer to response on 15.

Question 18		
Commenter		**Comment**
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
William J. Smith; Allegheny Power (1)	no	See answer to question 15.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Pepco Holdings (1)	no	See comments to Question 15
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Jason Shaver; ATC (1)	no	See refer to ATC's response to question 15.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Kathleen Goodman; ISO-NE (2)	no	The proposed standard requires more public discussion before discussing implementation plans.
Response: The Standard Drafting team must utilize the NERC Standard Drafting process for obtaining comments on the proposed Standard for any posted drafts. There will be an opportunity for a second comment period for Draft 2 of this proposed standard. The SPT SDT will consider conducting a workshop.		
FPL (1,3,5)	no	The standard needs additional drafting prior to evaluating the implementation plan.
Response: The SPT SDT has significantly revised the standard based on industry feedback. The SPT SDT recognizes modifications to the proposed standard may have an impact on the implementation plan.		
NPCC CP9 (1, 2)	no	NPCC Participating members cannot comment or agree to the implementation plan until a final draft of the standard is available.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
PJM (2)	no	The proposed standard requires more public discussion before discussing implementation plans.
Response: The SPT SDT must utilize the NERC Standard Drafting process for obtaining comments on the proposed Standard for any posted drafts. There will be an opportunity for a second comment period for Draft 2 of this proposed standard. The SPT SDT will consider conducting a workshop.		
ISO/RTO Council (2)	no	The proposed standard requires more public discussion before discussing implementation plans.
Response: The SPT SDT must utilize the NERC Standard Drafting process for obtaining comments on the proposed Standard for any posted drafts. There will be an opportunity for a second comment period for Draft 2 of this proposed standard. The SPT SDT will consider conducting a workshop.		

Question 18		
Commenter		**Comment**
FRCC SO Subcommittee (1,2,5)	no	The standard needs additional drafting prior to evaluating the implementation plan.
Response: The SPT SDT must utilize the NERC Standard Drafting process for obtaining comments on the proposed Standard for any posted drafts. There will be an opportunity for a second comment period for Draft 2 of this proposed standard. The SPT SDT will consider conducting a workshop.		
Ron Falsetti; IESO (2)	no	We cannot assess this until after the implementation plan is revised according to the changes made to the standard.
Response: The SPT SDT agrees with your comment. The SPT SDT has significantly revised the standard based on industry feedback.		
Gerald LaRose; NYPA (1)	no	The proposed Standard is complex in nature and contains many Requirements and will be potentially costly to many Entities. The Responsible Entities will require time and resources to perform the depth and breadth of work mandated. An Implementation Schedule over four years rather than two better complements the five-phases of the systematic approach to training and will significantly increase the probability that this effort be accomplished in a complete and thorough manner with the costs spread over a realistic time frame.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Michael Clime; Ameren	no	Should be longer.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Jim Sorrels; AEP (1)	no	This appears to be a repeat of question 15 above. AEP would like to see this changed to phase-in time period of 3 years.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
SPP OTWG (1,2)	no	Realistically implementation may take more than two years. Refer to question #15.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
MRO (1,2)	no	The MRO recommends that compliance measurement and enforcement wait until after the two-year phase-in period. There is concern that measuring compliance on only a portion of the standard will lead to a disjointed standard where compliance is not measured uniformly.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
MISO (1,6)	no	More time will be needed if the standard is too prescriptive.

Question 18		
Commenter		**Comment**
		Most entities will have to put material together for hundreds of tasks and training activities.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Michael Gammon; KCP&L (1)	no	I think two years is too aggressive for companies that do not have and cannot afford to have a dedicated training staff and do not need a dedicated training staff. Although, the standard espouses appropriate training elements, I think companies that do not have a dedicated staff will need three years to meet this standard.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
SCE&G ERO WG (1, 3, 5)	no	Twelve months is not enough time unless a standard list of " reliability related task" and agreement of the industry of minimun requirments as associated with these tasks as it applies to R1.1 through R1.7 can be provided.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed. In response to your request for examples of reliability-related tasks, the SPT SDT has provided a Generic Task List in the revised standard.		
Ed Davis; Entergy Services (1)	no	We suggest the Phased Implementation Period be over 3 years rather than the 2 years indicated.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Matthew Santos; SDE&G		It needs to be extended, unless you are saying the standard goes into effect and then in 2 years later we start with compliance?
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Allen Klassen; Westar (1)	no	Not giving enough time to meet the new requirements (lots of development and creating excessive documentation will have to be done) and should not make ANY requirement effective mid-year. Suggest effective dates of 1/1/2009 for R1 - R7 and 1/1/2010 for R8 - R10 at the earliest.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed. Any proposed standard is dependent upon jurisdictional regulatory approval and it unlikely that all regulatory approvals will be achieved in the same time frame.		
Hydro One Networks (1)	no	The phase in period should be conmensurate with the entity size. Larger entities may take longer to comply with this standard. Please see our response to question 15.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		

Question 18		
Commenter		**Comment**
Edward J. Carmen; Baltimore Gas & Electric (1)	no	Longer time will be required to comply with this standard. Many organizations are currently not properly staffed to accommodate this increased workload.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Dale Wadding; Dairyland Power Cooperative (5)	no	Depending upon the level of detailed requirements in the final Standard, more than 24 months may be required to implement all components.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Duke Energy (G1) (1)	no	In the current draft, the implementation plan is too short. If the requirements are re-written to be less prescriptive and detailed, a two year plan may be workable.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Brian Thumm; ITC (1)	no	As described in question 15, the two-year implementation plan is too short to develop the comprehensive documentation required by the proposed standard. Requirement R7 will be the most demanding, and at a minimum, it should be moved into Phase 3 in order to allow for a few extra months to complete it.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed. R7 has been removed from the standard.		
Brian Tuck; BPA (1)	no	The implementation plan will need to be assessed once changes to the requirements requested by BPA and other commenters are included in the next revision of the standard. BPA agrees with the concept of phased implementation. That said, to implement the training program described by this standard, in a manner that reflects the quality and effectiveness expected by industry participants, will require longer than two years.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Roger McBeth; Northeast Utilities (1)	no	Organizations will not have the inhouse resources to comply with this standard and will result in a considerable expense to complete a company specific JTA using a vendor.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The drafting team is posting a list of references that may assist entities in applying the SAT process.		

Question 18		
Commenter		**Comment**
Ron Gunderson; NPPD (1)	no	More time will be needed if the standard is too prescriptive. Most entities will have to put material together for hundreds of tasks and training activities.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Mark Bennett; Gainesville Regional Utilities (5)	no	
Allan George; Sunflower (1)	no	
CJ Ingersoll; CECD (3)	no	
Dan Kay; South Mississippi EPA (4)	no	
Robert Coish; MEHB (1, 3, 5, 6)	Yes/no	However, more will be needed if the standard is too prescriptive. Most entities will have to put material together for hundreds of tasks and training activities.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
John Bussman: AECI (1,5,6)	yes	If the requirements in R1 can be generic to allow the companies to prepare a traing program.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.		
John Kerr; GRDA	yes	After some serious adjustments, this could be inplementated in two years. No as it is now however.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed.		
Gordon Rawlings; BCTC (1)	yes	The plan says in part that PER-004-1 will be replaced with this Standard. The existing Standard is PER-004-0. Did the document mean to say PER-004-0 or is there a new PER-004-1 in progress that BCTC is not aware of or was this a typo?
Response: The SPT SDT will correct all incorrect references to the proposed standard PER-005.		
TVA (1)	yes	
Michael Scott; APS (1,5)	yes	
Southern Co (1,3,5,6)	yes	
Alan Adamson; NYSRC (2)	yes	

Question 18		
Commenter		**Comment**
FirstEnergy (1,3,5,6)	yes	
Howard Rulf; WeEnergies (3,4,5)	yes	
James Hinson; ERCOT (2)	yes	

19. Please provide any other comments you have on this standard that you haven't already provided above.

Several commenters have identified reasons why compliance with a new training standard may be challenging and while the drafting team is sympathetic to these commenters, the drafting team would also remind those stakeholders that the 2003 blackout occurred when there was voluntary compliance to an Operating Policy that asked entities to provide operator training – and the investigation concluded that not every system operator who was on duty on that day was prepared to recognize and respond to the conditions present on the bulk electric system. From an 'outsider's perspective' a system operator holds a position that is critical to infrastructure. System operator training needs to be viewed in the same light as a pilot's training – you wouldn't want to be a passenger in a plane with a pilot whose skills had not been verified. While the existing certification standard does require that system operators acquire a NERC credential, the content of the exam for that NERC credential is not company-specific and does not cover all the procedures, processes and tools that are available to an individual system operator at a specific work location. The intent of this standard is to ensure that system operators are as prepared as the pilot who has been trained to fly the plane he is in – and is prepared to address not only normal but a variety of abnormal conditions. Nothing less will meet the needs of the entities that rely electricity for their safety, comfort and livelihoods. Almost every infrastructure critical to our national security relies upon electricity. While providing training does take resources, it is necessary. The drafting team has modified the standard to retain its critical components while eliminating the elements of the standard that explained 'how' to achieve the desired results.

Several stakeholders have commented that the NERC Continuing Education (CE) program should be a substitute for the new training standard. The drafting team disagrees with this position. The CE program does not provide assurance that the system operator sitting at the console has the capability to perform of the reliability-related tasks associated with the system operator position. Who would want to be a passenger on a plane that had a pilot who had been trained to take off and land but had never been through training to maneuver through thunderstorms? We need to reach a point where we have assurance that system operators are capable of performing all the reliability-related tasks assigned to their position.

Question 19	
Commenter	**Comment**
Allan George; Sunflower (1)	I do not believe this extensive standard is necessary with the current CEH program that requires operating personnel to become and remain certified and CEH's must be maintained.Currently training and training requirements and registration of CEH's seems to detail that all Certified operators are being adequately reained in all areas. Is that not the intent os EOPS, simulator and class room training? Each Entity designs their training program to train oparators based on tasks they percieve as critical to its system. This Standard for compliance seems too aggressive for all companies to comply, most don't have budget or personnel to maintain this extensive standard.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.	
WECC RCCWG (1,2)	This standard will require more Staff to meet requirements thereby increasing the cost of providing power to our customers with little benefit for these customers.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.	

Question 19	
Commenter	**Comment**
Dan Kay; South Mississippi EPA (4)	There is no need for this standard. The NERC System Operator Certification Program with the required continiuing education for re-certification that is allready in place is more than sufficient to ensure an adequate level of training is accomplished for System Operators to know and to abide by NERC standards. The Employer of the System Operator is alleady held accountable via the 100 or so present standards, each with multiple requirments, should the System Opertator not be sufficintly trained and cause a violation of these standards.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost.	
Tim Hattaway; Alabama Electric Coop (5)	These training requirments are reminecent of kudzu (a fast growing vine with deep roots planted years ago to help stop soil erosion). Just like the unstoppable vines that have taken over and smothered other plants, climbed trees and taken over crops, these proposed training requirements reflect kudzu in that they keep growing. Rules, regulations and documentation overkill are strangling the efforts to operate a reliable power system.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.	
Mark Bennett; Gainesville Regional Utilities (5)	My opinion is this standard is not necessary at this time. What seems to be taking place is somewhat backwards. In the past all entities wer required to develop[a training plan to ensure that there was competent personnel manning Control Centers. Each entity developed their individual programs based on the tasks that they percieved as " high risk, or important". This got accomplished. Now I see a SAR dictating exactly how a training program should look and what sort of back up documentation is required. What kind of measurements and possible fines for not having a program as narrated in the SAR. The schedule for Compliance is too aggressive for some companies that don't have " dedicated, qualified trainers.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost.	
Santee Cooper (G2)	The NERC CE Program is a good program for the industry. It is requiring additional training for the system operators in a well structured manner. Interpretations of this standard that do not permit flexibility for companies to apply judgement to the overall implementation of their training programs and associated analyses would result in this standard being overly prescriptive
Response: During the development of the SAR for this standard, most stakeholders agreed that there	

Question 19	
Commenter	**Comment**
is a reliability-related need for a new training standard. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.	
Richard Krajewski; Public Service Co of NM (1)	The drafting team should provide detailed responses to the comments expressed in this form and in accordance with the spirit of the standard drafting process. Finally, PNM thanks the drafting team for your dedicated concern and efforts to improve our industry by helping entities develop valuable and effective training programs for System Operators.
Response: Thank you for your support. The SPT SDT has reviewed each comment and provided responses, as well as modified the requirements based on stakeholder feedback.	
Matthew Santos; SDE&G	A lot of these requirements need adjustment so that they are not burdensome. You can come up with all the requirements you think fit and will work but the bottom line is can it physicallly be done in the short amount of time you have allotted not to mention money but mostly personnel to carry it out. There are a lot of trainers that are overworked, overloaded and burning out and it is very hard to find qualified folks to be trainers, the industry is in short supply. The only viable option is to have a vender do it, this also takes time. We are 2 years in the running in building our training program with a vender. Why is it taking so long, manangement has to buy into it, chossing a vender, working with the vender to get what you want, vender time to complete based on their other clients, completeing JTA for all positions, production, add your companies materials (Procedures, referances, etc) revise, review, deliver, revise. All this takes time not to mention that existing training is still going on with everything else. Real time issues take presendance over anything else. We still in the process with the vender to complete our training program.
Response: The SPT SDT has significantly revised the standard based on industry feedback. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed. Phase 1 is 18 months; Phase 2 is 30 months; and Phase 3 is 36 months.	
Duke Energy (G1) (1)	The purpose of this standard is to ensure system operators are competent; however, the standard fails to ensure or measure competency. NERC certification, continuing education requirements, recommended training topics, and training activities approved by NERC is sufficient direction for an effective training program. The standard should be boiled down to the core training requirements (develop a program, deliver training [including and consistent with CEH],

Question 19	
Commenter	**Comment**
	record and assess progress, adjust the program annually).
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The standards addresses the core SAT phases. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.	
Jason Shaver; ATC (1)	In general, the requirements of this standard are overly prescriptive and unduly burdensome on the industry as they ignore the existing continuing education requirements already in place under the NERC CE Program. In addition, this standard needs to be flexible enough such that it allows entities to meet either a portion or all of its organizational training requirements via external NERC approved CE training vendors, under the existing CE Program, without requiring the entity to re-document and justify training courses previously approved by NERC.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The standards addresses the core SAT phases. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.	
MISO (1,6)	The standard should be boiled down to the core training requirements (develop a program, deliver training [including and consistent with CEH], record and assess progress, adjust the program annually). It would be simpler if this standard were measured globally (3 of the 4 requirements with no deficiencies is passing, minor deficiencies in 2 requirements is level 1, etc.). We agree that training is very important, but importance is not the same as the risk. Depending on how this standard is read, there appear to be 40 different things for which non-compliance can be assessed (and almost all of them are rated at medium or high risk). Deviating from a template training design does not put the Interconnections at risk of cascading. The standard as a whole should be evaluated at a lower risk. This standard should absorb the 32 hours of emergency training. Alternatively, this standard could lay out a way to evaluate "certified training providers".
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The standards addresses the core SAT phases. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements. A requirement has been added to the standard to address the 32 hours of emergency training.	
Robert Coish; MEHB (1, 3, 5, 6)	The System Personnel Training Standard lays out guidelines for a well thought out training program. However, there are other ways to have an

Question 19	
Commenter	**Comment**
	effective training program and each organization's needs are not the same. The primary issues relate to the administrative complexity and the compliance elements in the standard. There are a significant number of items for which non-compliance can be assessed. The team proposes that many of these are high and medium risk requirements. High risk requirements are events/items that can directly lead to cascading. Varying the design of a training program cannot directly lead to cascading outages. Also, the team has not proposed what tasks are considered reliability related tasks, leaving it to each company to determine. By not defining a minimum suite of reliability related tasks for Reliability Coordinator, Balancing Authority and Transmission Operator, who will determine if the company identified reliability tasks cover even a reasonable subset of tasks performed by the system operator. If no minimum set of reliability tasks are identified, the standard will not ensure that all companies are doing the right thing and the training of system operators will not be improved. The standard should be boiled down to the core training requirements (develop a program, deliver training [including and consistent with CEH], record and assess progress, adjust the program annually). It would be simpler if this standard were measured globally (3 of the 4 requirements with no deficiencies is passing, minor deficieiencies in 2 requirements is level 1, etc.). This standard should absorb the 32 hours of emergency training.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The standards addresses the core SAT phases. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements. A requirement has been added to the standard to address the 32 hours of emergency training. The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium. The SPT SDT has provided a Generic Task List in the revised standard. A generic analysis will not address all the reliability related tasks that a System Operator at a specific entity may perform. Therefore, each entity must complete a company-specific analysis to determine the required training.	
Ron Gunderson; NPPD (1)	The standard should be boiled down to the core training requirements (develop a program, deliver training [including and consistent with CEH], record and assess progress, adjust the program annually). It would be simpler if this standard were measured globally (3 of the 4 requirements with no deficiencies is passing, minor deficieiencies in 2 requirements is level 1, etc.). We agree that training is very important, but importance is not the same as the risk. Depending on how this standard is read, there appear to be 40 different things for which non-compliance can be assessed (and almost all of them are rated at medium or high risk). Deviating from a template training design does not put the Interconnections at risk of cascading. The standard as a whole should be evaluated at a lower risk. This standard should absorb the 32 hours of emergency training.

Question 19	
Commenter	**Comment**
	Alternatively, this standard could lay out a way to evaluate "certified training providers".
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The standards addresses the core SAT phases. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements. A requirement is included in the standard to address the 32 hours of emergency training.	
SPP OTWG (1,2)	We would prefer to see some examples of quality JTAs. We believe it's necessary to have some benchmark standards that can be used across the industry. This standard would require an unrealistic amount of record keeping, considering current staffing. Few entities have the resources, staff, and time to meet the demands of this standard.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT has provided a Generic Task List in the revised standard. A generic analysis will not address all the reliability related tasks that a System Operator at a specific entity may perform. Therefore, each entity must complete a company-specific analysis to determine the required training. revised standard with SAT process.	
SCE&G ERO WG (1, 3, 5)	A standard list of reliability related tasks with corresponding minimum requirements should be developed for R1.1 through R1.7 to allow the applicable parties to prevent unnecessary expenditures and poor use of resources and time. This would benefit all parties involved. It also should allow smaller organization to contract with third parties to write plans for them if necessary using a standard approach. It should allow all of us to take the guess work out of what is intended by the requirements.
Response: The SPT SDT has provided a Generic Task List in the revised standard. A generic analysis will not address all the reliability related tasks that a System Operator at a specific entity may perform. Therefore, each entity must complete a company-specific analysis to determine the required training. During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The standards addresses the core SAT phases. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.	
PJM (2) ISO/RTO Council (2) ISO-NE (2)	PJM (IRC) (ISO-NE) recognizes and supports the need for and the value of developing system operator Training plans, and of maintaining and implementing those plans. PJM (IRC) (ISO-NE) also recognizes that owing to the diverse system characteristics, varying operating systems and multitude of operating procedures used by the subject responsible entities, that the Training

Question 19	
Commenter	**Comment**
	Programs used to effect those Training plans are not and cannot be standardized. Violations Risk Factors PJM (IRC) (ISO-NE) does not agree that the SDT correctly interpreted the definitions of the Violation Risk Factors; and does not agree with the factors proposed. Training Program Accreditation Rather than attempting to proscribe what must be included in every program, PJM (IRC) (ISO-NE) suggests that the SDT consider creating a System Operator Training Accreditation Program. PJM (IRC) (ISO-NE) suggests the SDT consider revising the Standard to simplifiy the standard to mandate: - Responsible entities have a System Operator Training Plan - Responsible entities use accredited Training Programs to implement those plans PJM (IRC) (ISO-NE) further suggests that the details proposed in the current standard be drafted into a Technical Reference Guide that could serve as the basis for the Accreditation program.
Response: The SPT SDT agrees with the comment that the requirement should not be considered a High risk factor and has revised the risk factor to Medium. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost. The SPT SDT has significantly revised the standard based on industry feedback. The drafting team is posting a document that lists references entities can use to help understand and apply the SAT process.	
Southern Co (1,3,5,6)	Southern Company does not believe this Standard is necessary since PER-002 could be revised to include certain components of this proposed standard. However, if the development of this standard continues, we make the following comments: Requirement 4 is essentially a duplicate of PER-002, Requirement 2. Requirements 4.1-4.4 are essentially duplicates of PER-002, Requirements 3.1-3.4. Requirement 5.1 and 5.2 are very close to PER-002, Requirement 3.4. If you remove these duplications, the SDT may not be left with enough substance to build a standard around. Under Requirement 1, recommend changing the name of System Operator job task analysis to System Operator Job Description. Job Performance Appraisals should be an acceptable method for meeting Requirement 8.1. Does the 32 hours of emergency operations training specified in Requirement 6.5.1 count toward the 5 days of training required for PER-002, Requirement 4?

Question 19	
Commenter	**Comment**
	The primary emphasis of this standard seems to rely on the process and not about measuring whether or not operators are properly training. R5 - The term "systematic approach" is used but no direction or expectation is provided in the standard on what is acceptable. R6.5.2 - The requirement expressed here is too prescriptive and in some cases probably not practical. If this requirement is ultimately considered appropriate, it should be done as part of EOP-005 R6 and not inserted here as part of a general training standard. The same argument could be made for R6.5.1 as well.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The SPT SDT has significantly revised the standard based on industry feedback. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. A requirement has been added to the standard to address the 32 hours of emergency training.	
Richard Appel; Sunflower Electric Power Co (1,3,5)	This standard will require additional staff and many man hours to implement. Most utilities don't have the man power to inplement this. Where are these people coming from.This is not needed at this time.As we have PER-002.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard.	
SRP (1)	This standard will require more Staff to meet requirements thereby increasing the cost of providing power to our customers with little benefit for these customers. Requirement 1 - "maintain" may be a better choice that "conduct" a System Operator JTA… Requirement 5.1 and 5.2 are truly just headings (not requirements) and should be eliminated. The others in this section (R5.1.1, R5.1.2, and R5.2.1) could be renumbered to R5.1-R5.3. It may be beneficial to define some terms associated with this standard. What is meant by "critical task", "training plan", and other intermediate levels of tasks? This standard was reviewed by a Transmission Operations Manager, Generation Operations Manager, Training Supervisor, and 2 Training Analysts. While some effort was made to arrive at consensus, some variety was left in tact for the drafting team to consider. It may be more beneficial to obtain a variety of perspectives without too many edits for the sake of maintaining a unified voice from one company. The drafting team needs to see the variety of perceptions as individuals read through this standard.
Response: During the development of the SAR for this standard, most stakeholders agreed that there	

Question 19	
Commenter	**Comment**
is a reliability-related need for a new training standard. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPSDT agrees with your comment on criticality and has removed the references to criticality from the requirement. The SPT SDT agrees with the comment that only specific tasks that are considered critical to reliability should be considered and has revised the requirement to include analysis that considers only reliability-related tasks by System Operator positions.	
Edward J. Carmen; Baltimore Gas & Electric (1)	R6.5.2 requires all real-time operating positions to participate in at least one multi-entity exercise per year. BGE is a member of PJM. PJM currently conducts 2 Restoration drills per year. BGE includes as many operating personnel as possible in these drills, however, it is not feasible to include all operating positions. BGE recommends revising this requirement to read: "involving as many real-time operting positions as possible…….and, ensure that all operating positions participate in these drills at least once every 5 years".
Response: The SPT SDT has removed this requirement.	
Ed Davis; Entergy Services (1)	Entergy Transmission agrees with the SAR requirements for developing this standard. The SAR requires a systematic approach be used to identify training needs and to conduct the training. The SAR also requires responsible entities have evidence that each of its real-time system operators is competent to perform each assigned task. Entergy's suggested changes contained herein are intended to make this draft standard better conform to the SAR requirements. We believe this draft standard is overly prescriptive in its detailed requirements for how the responsible entities implement a systematic approach to training. We also believe this draft standard is overly prescriptive in the detailed process, information and documentation entities must follow to meet the requriements of this draft standard. We also request that, in all locations in the standard, the criteria for being QUALIFIED TO PERFORM A TASK should be specified in the draft standard, replacing - criteria for SUCCESSFUL PERFORMANCE. The authors of this questionairre did not ask any questions, nor did they provide a place to comment on R6 which requires the implementation of the training program. We suggest R6.1 though R6.4 are overly proscriptive and should be deleted. Also, R6.5.2 requiring at least one exercise each year involving all real-time operating positions should be deleted as being too high a risk factor for the continued real-time reliability of the BES and would involve significant time and effort for the expected gain in operational experience. We are concerned about the broadbrush requirements placed on the responsible entities concerning the training of System Operators under contract or under delegation agreement. This draft standard implies that the responsible entities are responsible for conducting a training needs assessment (R3), implementing its training program (R6), and tracking

Question 19	
Commenter	**Comment**
	the progress of each of the operators (R8) for each of the operators under contract or under delegation agreement. We suggest the responsibility for training be assigned to either the contractor or the responsible entity, depending on the content of the training required (training about general power systems, or training concerning the responsible entity's specific system) and which entity is performing a specific task. First, the contractor under delegation agreement (not the responsible entity) should be responsible for training its employees about general power systems and tasks associated with the the specific system knowledge for the responsible entity; the responsible entity should not be measured nor held in compliance for delegated tasks. Second, the contractor employing system operators (not the responsible entity) should be responsible for training the contractor employees about general power systems, while the responsible entity should be responsible for training the contract system operator about the specific system knowledge for the responsible entity. We suggest the draft standard be revised to reflect these training responsibility concepts. We will agree with the Applicability statement in the Implementation Plan concerning contract employees and delegation agreement employees given the changes are satisfactorily made in the standard.
Response: The SPT SDT has significantly revised the standard based on industry feedback. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. Based on stakeholder feedback the standard has been reworded such that the successful performance is determined using the systematic approach to training by the entity.	
FPL (1,3,5)	Requirement R6.5.2 needs to be deleted. Joint training exercises can be beneficial, but to mandate these at this time is not justifiable. The requirement is inappropriate since it would put an entity's compliance with the requirement, subject to cooperation by another entity. Language requiring a training needs assessment of System Operators performing task identified in R1 under delegations agreements is extremely burdensome. As an example, a neighboring company may be performing the regulating function of an entity, since some form of regulation will be identified in the JTA - the entity will be forced to perform a training needs assessment on that company performing regulation service to determine if their operators can successfully perform the tasks identified in the JTA - even if those operators are being trained by there own company. We therefore, disagree with the use of the parenthetical expression (including any contract System Operator or System Operator performing tasks identified in R1. under delegation agreements). The use of this caveat throughout the standard creates confusion and ambiguity in that it makes the requirements difficult to read and dilutes clarity.
Response: Requirement 6.5.2 has been removed from the revised standard. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that	

Question 19	
Commenter	**Comment**
the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.	
Julie Tate; Progress Energy (1,3,5)	Overall, Progress Energy agrees that the Initial and continuing training plans should be tailored to the System Operator job function as identified from the job task analysis. However, it appears the inidividual GAP analysis requirements of the proposed standard are beyond the INPO training model for nuclear reactor operators. Progress Energy recommends that during initial and continuing training, gaps in performance versus the system operator job function expectations can be identified, especially in simulator exercises. From this identificaiton of gaps in performance expectations identified in continuing training, remedial training (refresher training) can take place immediately in the training session to ensure learning takes place, individual performace meets the job funtion requirments, and most importantly the gap is addressed immediately. To be consistant with the INPO training model, there is no need for a formal individual gap analysis to be conducted annually outside of the continuing training process. Also, if a gap is identified in this proposed standard's required annual assessment, the standard does not require the operating entity which has identified the gap to provide any immediate remedial action and thus the operating entity is creating a litigation issue.
Response: The SPT SDT has revised the requirement to focus on positions, as opposed to individual or team performance. During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The standards addresses the core SAT phases.	
John Bussman:AECI (1,5,6)	This procedure is to restrictive. If a company can show that there are procedures in place that show how operators are trained to maintain the BES than we shouldn't have to prepare a Job Task Analysis and maintain it. There is more than one way to ensure operators are trained. I was not a Nuclear operator, however, I don't recall that job task analysis's are prepared. The operators are trained on a simulator over a 6 month period and then follow procedures when in the field. I do not believe there are JTAs. I think preparing what this standard states would overburden a company that has a process in place to ensure an operator is properly trained to maintain the BES under all conditions. A second comment is that PER-002 request that the RRO and NERC define a set of training program ojectives. Is SERC also going to have a set of stanards the entities must follow. Again this stanard is very restrictive.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.	

Question 19	
Commenter	**Comment**
The SPT SDT has significantly revised the standard based on industry feedback. The regional requirements are outside the scope of this standard.	
John Kerr; GRDA	Examples, explanations and studies should be conducted first. Most of this standard would put a burden on all entities.
Response: During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The SPT SDT will consider conducting a workshop.	
Jim Sorrels; AEP (1)	The Standard Drafting Team needs to be careful to not include verbiage in the Requirements and Measures that could lead to entities having to provide an individual's job performance evaluation as part of the documentation for training. These are private and confidential personnel records that should not become part of public record. This proposed standard needs additional work. AEP continues to agree conceptually with the purpose of the proposed standard and the need for such a standard. We would suggest that the drafting team take another hard look at what should be considered requirements and what are just good guidelines. The standard needs to focus on requirements. Presently, we believe it contains a significant amount of detail that should be considered guidelines, not requirements.
Response: The SPT SDT has revised the requirement to focus on positions, as opposed to individual or team performance. During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The standards addresses the core SAT phases.	
Gerald LaRose; NYPA (1)	The phraseology "including any contract System Operator or System Operator performing tasks identified in R1 under delegation agreements" (R3, R6, R8) has in some instances been interpreted as applying to System Operators in a Local Control Center and in other instances to field personnel who perform SCADA-controlled or manual switching functions. The NERC Functional Model, as best as I know, contains no such reference. If the Drafting team is proposing that these Requirements extend beyond the what is in the Functional Model, e.g., RC and TOP, it should succinctly state such in a manner that will cause no confusion when the balloting commences.
Response: The “including any contract System Operator or System Operator …” has been removed from the requirement. The standard is applicable to the three functional entities, TOP, BA, RC and those personnel performing reliability-related tasks on behalf of those entities. The SPT SDT has revised section 4.2 (under Applicability) concerning the responsibilities.	
NPCC CP9 (1, 2)	NPCC Participating members believe this Standard is focused on the training program and not on the purpose of training. It is not important that an entity has a training program, rather it is vital that the entity has an effective training program, and one that is measurable by NERC. The Proposed Standard defines actions the entity must take but it does not define a performance measure that is tied to improving System Operator competency. For instance, if a gap is identified and training is

Question 19	
Commenter	**Comment**
	provided, then the entity has met the proposed Standard's requirements. But there is no assessment of successful training or poor training. Whether a gap is closed or remains after training does not matter to this Standard. This Standard should be limited to a requirement for the entity to identify and document required skills, a requirement to define an acceptable time period to acquire the skill, a method of documenting the Operator's skill, a method to reassess the Operator's skill if a gap was measured, and removal from Operation if a gap persists. The proposed NERC Standard is too keen on documentation of lesson plans, and not sharp enough on defining valuable objectives. Specific comments are: 1. R1. What is a Job Task Analysis? Needs to be defined. There is a difference between a list of tasks the Operator performs and a step by step instruction of performing the tasks. 2. R1.1 Needs to be more specific. What is meant by conditions? R1.2 This needs to be defined for the level of specificity required. R1.4. I think all real-time reliability related tasks are equally critical. The SDT should otherwise define levels of criticality criteria. R1.5 What is the SDT looking for in frequency definition? How is it defined? R1.6 Knowledge, skill and experience levels are not needed for JTA. All system operators, regardless of experience levels, should be able to perform reliability tasks. 3. R4 This does not belong in a Standard. The details are the responsibility of the entity. 4. R 6.2 How many hours of continuing training is required. R6.3 The word "Requirement" should not be spelled out. R6.4 Is not needed. Seems a repeat of R6.3 R6.5.1 Is the PER-002 R4 requirement going to be deleted? 5. R7. Training , the hours of training, the method of delivery, and objectives do not need to be documented to have a successful training program. Suggest eliminating this requirement. 6. R8. Training should be performed until an Operator is competent in a task. 7. R10- Not needed in a Standard.
Response: The SPT SDT has significantly revised the standard based on industry feedback. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised R1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. R4 has been removed.	

Question 19	
Commenter	**Comment**
R6 has been removed. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements. During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The SPT SDT plans to recommend retiring PER-002. R7 has been removed. With respect to R8 has been removed. With respect to your comment on R10, the SPT SDT agrees and has removed the requirement.	
Roger McBeth; Northeast Utilities (1)	This standard will require a huge investment for creating a formal Job Task Analysis Database/Document to meet requirement R1.1 - R1.7 and there will still be the cost of developing the training materials. To manage such a JTA Database will require purchasing a costly Learning Management System. Most organizations are not currently staffed to manage such an undertaking and there is not a large source of system operators with the training experience to complete all aspects of this standard. From my own personal experience in the nuclear industry, I was part of a 3 person training staff prior to implementing the Systematic Approach to Training at a commercial nuclear power plant in 1984. There was a steep learning curve and a significant increase in staffing to support the administrative requirements. INPO provided a generic task list and job task analysis. We were required to perform a company specific Job Analysis/Job Task Analysis and develop training material using the results of the Job Task Analysis. This effort took close to a year using a 20 person contractor staff and we ultimately hired an additional 11 full time instructors to support the operator training program. We stopped all formal training programs during the performance of the JA/JTA and placed a significant demand on operator's time to serve as subject matter experts to support the JA/JTA and provide technical reviews for training material.
Response: The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised R1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost. In response to your request for examples of reliability-related tasks, the SPT SDT has provided a Generic Task List in the revised standard.	
Ron Falsetti; IESO (2)	The IESO appreciates the opportunity to comment, and commends the drafting team for its breath of consideration in coming up with this draft standard. However, we feel that the standard can better focus on the key requirements for training. (1) We feel that the standard should focus on the following 4 key requirements to hold each of the three operating entities (RC, BA and TOP) responsible for: a. Developing a training program which lists the tasks (specifically for the RC, BA and TOP as listed in the Functional Model) to be performed and the competency level required to perform the tasks;

Question 19	
Commenter	**Comment**
	b. Delivering the training program; c. Recording, tracking and assessing progress of the persons receiving training; d. Planning, providing resource, reviewing and adjusting (as necessary) the training program annually. (2) Individual organizations may require the operators to perform other tasks but such tasks and the corresponding training requirements are outside of the scope of an industry-wide NERC standard from the viewpoint of the tasks assigned to the three functional entities. The training requirements to perform these other tasks should not be included in this standard. (3) Some of the items listed in R1.1 to R1.7 support the job/task description. They can be put as attachment template requirements that the training program shall include, and to aid assessment of compliance. Similarly. some of the items listed in R7 can be put into a template as requirements to prove delivery of the trainiing program. 4. Based on the above philosophy, we recommend the SDT to consider revising the draft standard as follows: (i) Keep R1 (for Key Requirement 1a above) and revise it as appropriate to require each of the 3 entities to develop a training program for their operating staff to perform the task associated with the entity's registered function; put some of R1.1 to R1.7 to a template attachment; (ii) Combine R2, R3, R4, R9 and R10 (for Key Requirement 1d above) to become a requirement for an annual planning, review, and maintenance exercise for the training program. (iii) Keep R6 (for Key Requirement 1b above), and put some of the items in R7 in a template attachment for proof of training delivery. (iv) Keep R8 (for Key Requirement 1c above), and revise it as appropriate. (v) Remove R5
Response: The SPT SDT agrees that the element identified is important and are encompassed in the revised standard. The SPT SDT has significantly revised the standard based on industry feedback. The standards addresses the core SAT phases. The SPT SDT agrees with the comment that only specific tasks that are considered critical to reliability should be considered and has revised the requirement to include analysis that considers only reliability-related tasks by System Operator positions. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform the analysis phase of systematic approach to training is not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. The SPT SDT has combined R2 and R3 and removed R4, R5, R6, R7, R8, R9, and R10 from the revised standard.	
Gordon Rawlings; BCTC (1)	There was no question directly associated with R6 to allow comments. Requirements R4 and R6 address similar training areas with the primary difference being R4 is for the "annual training plan" and R6 is the "implementation" of the training plan. It is difficult to write NERC

Question 19	
Commenter	**Comment**
	standards but some of the Standards repeat the same words just in a different context. Can the drafting team look at combining R4 and R6 into a single requirement addressing the separate issues of an annual training plan and the associated implementation of the plan? Separate Measures could be written to address these two areas even though they are contained within a single Requirement. BCTC supports a requirement for development, delivery, and evaluation of system operator training using a "systematic approach to training" as required in this Standard. Even though a specific principle of a systematic approach to training makes it more effective, that doesn't mean that principle should be part of a mandatory reliability standard. A reference document describing many of the "how" to do a quality job of using the systematic approach would be helpful. Some of our comments to remove parts of the Standard may fit well within a reference document that is not used to judge compliance. This standard may be the single most expensive standard to come from NERC for the electrical industry. It is important to ensure the words are clear and we know what is expected and not open to interpretation. We believe it also important to test this standard in industry to ensure it will work for its intended purpose. BCTC would request NERC to take the time to ensure the administrative requirements are gradually introduced and they do not take away time from training efforts already ongoing. The industry has been working through Certification and Continuing Education requirements that have been refined over the past 3 years and these requirements have been good to ensure training efforts and requirements get better within our industry. We hope that you will come back with a standard that is simple to understand not burdonsome on us to follow on top of the training requirements for CE and all the other efforts ongoing.
Response: The SPT SDT has removed R4 and R6 The SPT SDT has significantly revised the standard based on industry feedback. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for system operators that meets minimum standards may incur additional cost. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements. Based on stakeholder feedback, the implementation plan has been lengthened to three years and the dates were removed. Phase 1 is 18 months; Phase 2 is 30 months; and Phase 3 is 36 months.	
Hydro One Networks (1)	In general, it is a good idea to be more prescriptive in training requirements but this standard is too prescriptive. -Greater understanding of the required detail pertaining to the JTA requirement in R1 is needed. Normally there are 3 requirement associated with learning objectives; action, conditions, and standard… not the 7 items listed R1.1 through R1.7. -R6.5.2 may be impossible to implement for every operator annually. -A clearer understanding of "reliability-related" and R1.4 "Criticality of the task with respect to reliability" is needed as this is open to subjective interpretation. -The activities listed in R7 may not all be applicable for each activity

Question 19	
Commenter	**Comment**
	used to support reliability-related training.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The drafting team has revised the requirements to reflect the outcomes of the analysis, rather than prescribing the methodology. The SPT SDT has revised the standard and Requirement 6.5.2 has been removed. The SPSDT agrees with your comment on criticality and has removed the references to criticality from the requirement. The SPT SDT has removed R7. The SPT SDT has added a paragraph in the Introduction section of the standard to clarify the meaning of reliability-related training.	
FirstEnergy (1,3,5,6)	FE would like to request NERC consider providing industry wide web based software support for the the job task analysis requirement. Software is available and used by the nuclear industry that would be useful and benefical to completing the job task analysis requirement of this standard.
Response: The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.	
Alan Adamson; NYSRC (2)	This Standard is overly broad and vague. This Standard is focused on the training program and not on the purpose of training. It is not important that an entity has a training program. Rather, it is vital that the entity has an effective training program, and one that is measurable by NERC. The Proposed Standard defines actions the entity must take, but it does not define a performance measure that is tied to improving System Operator competency. For instance, if a gap is identified and training is provided, then the entity has met the proposed Standard's requirements. But there is no assessment of successful training or poor training. Whether a gap is closed or remains after training does not matter to this Standard. This Standard should be limited to a requirement for the entity to identify and document required skills, a requirement to define an acceptable time period to acquire the skill, a method of documenting the Operator's skill, a method to reassess the Operator's skill if a gap was measured, and removal from Operation if a gap persists. The proposed NERC Standard is too keen on documentation of lesson plans, and not sharp enough on defining valuable objectives. Specific comments are: 1. R1. What is a Job Task Analysis? Needs to be defined. There is a difference between a list of tasks the Operator performs and a step by step instruction of performing the tasks. 2. R1.1 Needs to be more specific. What is meant by conditions?

Question 19	
Commenter	**Comment**
	R1.2 This needs to be defined for the level of specificity required. R1.4. I think all real-time reliability related tasks are equally critical. The SDT should otherwise define levels of criticality criteria. R1.5 What is the SDT looking for in frequency definition? How is it defined? R1.6 Knowledge, skill and experience levels are not needed for JTA. All system operators, regardless of experience levels, should be able to perform reliability tasks. 3. R4 This does not belong in a Standard. The details are the responsibility of the entity. 4. R 6.2 How many hours of continuing training is required. R6.3 The word "Requirement" should not be spelled out. R6.4 Is not needed. Seems a repeat of R6.3 R6.5.1 Is the PER-002 R4 requirement going to be deleted? 5. R7. Training, the hours of training, the method of delivery, and objectives do not need to be documented to have a successful training program. Suggest eliminating this requirement. 6. R8. Training should be performed until an Operator is competent in a task. 7. R10- Not needed in a Standard.
Response: The SPT SDT has significantly revised the standard based on industry feedback. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. R4 has been removed. R 6 has been removed. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements. During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The SPT SDT plans to recommend retiring PER-002. R7, R8, and R10 have been removed from the revised standard.	
Brian Thumm; ITC (1)	It appears that this standard will result in the need for more personnel being assigned and trained in how to be a Operations Trainer. Therefore the Implementation plan may need to be as long as five years to allow for this build-up of experience and knowledge in the training areas of companies. Finally, the standard's stated purpose is to ensure that system operators are competent to perform their real-time, reliability-related tasks. The standard focuses almost entirely on the documentation requirements for program elements, but offers little to no assurance that real-time operators remain competent in their duties. The standard requires the training program to be well documented, but the standard falls short on performance-based metrics for a successful training program.
Response: Based on stakeholder feedback, the implementation plan has been lengthened to three	

Question 19	
Commenter	**Comment**
years and the dates were removed. Phase 1 is 18 months; Phase 2 is 30 months; and Phase 3 is 36 months. The SPT SDT agrees with the comment that only specific tasks that are considered critical to reliability should be considered and has revised the requirement to include analysis that considers only reliability-related tasks by System Operator positions. The SPT SDT has added a requirement to the standard necessitating that each entity provide evidence that each of its real-time System Operators is competent to perform each assigned task that is on the list of reliability-related tasks. The SPT SDT has added a paragraph in the Introduction section of the standard to clarify the meaning of reliability-related training.	
Brian Tuck; BPA (1)	Requirements R4 and R6 address comparable training areas with the primary difference being that R4 is the "annual training plan" and R6 is the "implementation" of the annual training plan. BPA suggests the drafting team combine R4 and R6 into a single requirement addressing the separate issues of an annual training plan and its associated implementation. Separate Measures could be written to address these two areas even though they are contained within a single Requirement. BPA agrees with the requirement for annual refresher training on high reliability tasks (R6.5), and the inclusion of the 32 hour emergency operations requirement (R6.5.1) in this standard. While acknowledging the benefit of participation in regional exercises, BPA believes the requirement that all system operators participate in a regional exercise "involving all real-time operating positions likely to be involved in the actual event, with each person performing their assigned duties." (R6.5.2) is excessive and does not provide benefit commensurate with the development cost on an annual basis. BPA suggests removing requirement R6.5.2. BPA supports a Standard requiring development, delivery, and evaluation of system operator training using a "systematic approach". However, a mandatory reliability standard with economic sanctions should address the essental elements needed to comply with the Standard and not become too prescriptive in the implementation of the requirements. BPA applauds the restraint the drafting team has shown by making the effort to include only the essential elements of a systematic training program. Finally, BPA thanks the drafting team for your dedicated concern and efforts to improve our industry by helping entities develop valuable and effective training programs for system operators.
Response: The SPT SDT has removed R4 and R6 from the revised standard. The SPT SDT has significantly revised the standard based on industry feedback. The standards addresses the core SAT phases. A requirement has been added to the revised standard to address the 32 hours of emergency training.	
MRO (1,2)	The MRO believes that as long as this standard is not in conflict with other standards that require hours of emergency training (i.e. PER-003), then it is fine; however care needs to be taken to prevent these conflicts from arising in the future.
Response: PER005 will replace PER002 and portions of PER004. Please see the implementation plan.	

Question 19	
Commenter	**Comment**
Will Franklin; Entergy (6)	R6 seems to exist only to state that one must 'implement' the plan developed in R4. This unecessarily clutters the standard. It would be more concise to state in R4 that one must 'develop and implement' an annual training plan. Thanks for the opportunity to provide input on the development of the standard. In general, we support the principle of developing more structured guidelines for operator training.
Response: The SPT SDT has revised the standard and R4 and R6 have been removed.	
Allen Klassen; Westar (1)	R6.5 needs to be revised. Why maintain the 32 hour requirement which was arbitrarily "pulled from the air" as a reaction to the blackout, if the training program is developed and evaluated as required, arbitrary specified hours should not be required. R6.5.2 requires coordination and development of exercises that can not be completed by an individual entity (how can they be held to compliance if their neighbor fails to particpate, etc?). To complete this requirement annually for every operator at every entitity you better schedule an exercise every week, much too excessive, try every three years for each operator or maybe this is already covered by Continuing Education for Certification.
Response: While the Training Standard Drafting Team agrees with the logic of the argument, the 32 EOP hour requirements was maintained due to lack of evidence that it is unreasonable. The CE Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes this standard's requirements do not conflict with the CE Program's requirements.	
Michael Gammon; KCP&L (1)	Do not agree with all the requirements in R6 as stated below: **R6.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall implement its System Operator training program by providing training to all of its System Operator (including any contract System Operator or System Operator performing tasks identified in R1 under delegation agreements) as follows: [Risk Factor: High] **R6.1.** Entry-level training to provide System Operator with the knowledge and skill identified in R2 to meet the associated criteria for successful performance identified in R1.7. **R6.2.** Continuing training to reinforce knowledge and skills of incumbent System Operators as identified in the JTA (Requirement 1) that ~~were not covered in Requirement 4.2~~ meet requirements R4.2 to R4.4. (Everything the incumbent Operator needs is identified by R3 and specified in R4. There should not be anything that is not covered by this standard.) **R6.3.** Refresher training to eliminate performance gaps identified by the training needs assessments in by the JTA (Requirement 1) and ~~Requirement 2, and~~ Requirement 4.2 ~~3~~. **R6.4.** Continuing training to acquire the knowledge and skills necessary for new or modified tasks and tools

Question 19	
Commenter	**Comment**
	identified in R1 and R2 ~~and R3~~. **R6.5.** Annual refresher training for incumbent System Operator that includes the use of drills and simulations on tasks that have high reliability-related criticality (as identified in R1.4) and low frequency of occurrence (as identified in R1.5) to meet the associated criteria for successful performance identified in R1.7. This refresher training shall include: (This requirement is already in Reliability Standard PER-002, R4 and is not necessary to be repeated in this proposed standard.) R6.5.2. If sub regional, regional or interconnection-wide system exercises are available, at ~~At~~ least one exercise each year shall involve other entities on a sub-regional, regional or interconnection-wide basis, involving ~~all~~ the appropriate real-time operating positions likely to be involved in the actual event, with each person performing their assigned duties. (It is inappropriate to require an organization to do something that is entirely out of their control. What if no there are no sub regional or regional activities available? It should be left up to the companies involved to determine the extent of an exercise.)
Response: The SPT SDT has R6 from the revised standard PER005 will replace PER002, as described in the Implementation Plan.	
WECC OTS (1,2)	There was no question directly associated with R6 to allow comments. Requirements R4 and R6 address comparable training areas with the primary difference being R4 is for the "annual training plan" and R6 is the "implementation" of the annual training plan. Too many NERC and regional standards seem to say the same thing over and over with the only material difference being context. OTS suggests the drafting team combine R4 and R6 into a single requirment addressing the separate issues of an annual training plan and the associated implementation of the plan. Separate Measures could be written to address these two areas even though they are contained within a single Requirement. The OTS is the principle group in the Western Interconnection to support the WECC training program and providing support to the trainers in the West. OTS believes that quality training can and should result in quality System Operators and improved system reliability. Quality training doesn't just happen, it requires analysis and process. OTS supports a requirement for development, delivery, and evaluation of system operator training using a "systematic approach to training" as required in this Standard and as endorsed by the FERC. However, a mandatory reliability standard with economic sanctions should address the essental elements and not become too prescriptive in its requirements. The drafting team has shown restraint since early versions of the SAR and removed many requirements. Even though a specific principle of a systematic approach to training makes it more effective, that doesn't mean that principle should be part of a mandatory reliability standard. A reference document describing many of the "how" to do a quality job of using the systematic approach would be helpful. Some of the OTS comments to remove parts of the Standard would fit

Question 19	
Commenter	**Comment**
	well within a reference document that is not used to judge compliance. OTS requests the drafting team provide detailed responses to the comments expressed in this form and in accordance with the spirit of the standard drafting process. Finally, OTS thanks the drafting team for your dedicated concern and efforts to improve our industry by helping entities develop valuable and effective training programs for system operators.
Response: The SPT SDT has revised the standard and R4 and R6 have been removed. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training. During the development of the SAR for this standard, most stakeholders agreed that there is a reliability-related need for a new training standard. The standards addresses the core SAT phases. Improvements in industry training are warranted based on findings from the '03 Blackout Report and subsequent determination from FERC (Order 693). Developing and maintaining training for System Operators that meets minimum standards may incur additional cost. The drafting team is posting a document that identifies references that may assist entities in understanding and applying the SAT process.	
FRCC SO Subcommittee (1,2,5)	Requirement R6.5.2 needs to be deleted. Joint training exercises can be beneficial, but to mandate these at this time is not justifiable. The requirement is inappropriate since it would put an entity's compliance with the requirement, subject to cooperation by another entity. Language requiring a training needs assessment of System Operators performing task identified in R1 under delegations agreements is extremely burdensome. As an example, a neighboring company may be performing the regulating function of an entity, since some form of regulation will be identified in the JTA - the entity will be forced to perform a training needs assessment on that company performing regulation service to determine if their operators can successfully perform the tasks identified in the JTA - even if those operators are being trained by there own company. We therfore, disagree with the use of the parenthetical expression (including any contract System Operator or System Operator performing tasks identified in R1. under delegation agreements). The use of this caveat throughout the standard creates confusion and ambiguity in that it makes the requirements dificult to read and dilutes clarity. If the DT has a concern they should address it explicitely through a proposed definition or adding a caveat to the applicability section. Conceptually does the caveat imply that an entity will be responsible for tracking the training activities of another entity that it may have delegated a tasks to? If this is the intention, it will lead to significant confusion from a compliance measurement standpoint as far as an entity demonstrating compliance to the requirement by having to audit another entity's training records / program and demonstrate compliance on behalf of multiple entities.

Question 19	
Commenter	**Comment**
Response: The SPT SDT has revised the standard such that R 6.5.2 has been deleted. The SPT SDT agrees with the comment that the methodology used to perform the analysis phase of systematic approach to training should not be dictated. The SPT SDT revised the requirement such that the methodology used to perform and the information collected during the analysis phase of systematic approach to training are not prescribed in the revised Requirement 1. Rather, the requirement identifies the phases of the SAT process that must be included in the development of the training.	

Maureen E. Long
Standards Process Manager

August 15, 2007

TO: REGISTERED BALLOT BODY

Ladies and Gentlemen:

Announcement: Comment Periods Open

The Standards Committee (SC) announces the following standards actions:

EOP-005-2 — System Restoration and Blackstart – Operations and EOP-006-2 — System Restoration and Blackstart — Coordination Standards Posted for 45-day Comment Period

The first drafts of the revisions to the set of System Restoration and Blackstart Standards (Project 2006-03) have been posted for a 45-day comment period from August 15, 2007 through September 28, 2007.

The proposed revisions update and move requirements from four standards into two standards as shown below:

Existing Approved Standards	Proposed Revised Standards
EOP-005-1 — System Restoration Plans	EOP-005-2 — System Restoration and Blackstart - Operations
EOP-006-1 — Reliability Coordination — System Restoration	EOP-006-2 — System Restoration and Blackstart — Coordination
EOP-007-0 — Establish, Maintain, and Document a Regional Blackstart Capability Plan	(merged into EOP-005-2 and EOP-006-2)
EOP-009-0 — Documentation of Blackstart Generating Unit Test Results	(merged into EOP-005-2 and EOP-006-2)

The proposed revised standards include many significant changes, including re-assignment of requirements that had been assigned to the Regional Reliability Organization, identification of the specific elements that must be contained in a system restoration plan, and the introduction of a new term "blackstart resource" along with a recommendation to retire the term "blackstart capability plan." Please use this comment form to submit comments on EOP-005-2 and EOP-006-2.

PER-005-1 — System Personnel Training Standard and Implementation Plan Posted for 45-day Comment Period

The second draft of PER-005-1 — System Personnel Training (Project 2006-01) has been posted along with its implementation plan, and references to aid in implementing the standard. The drafting team has made significant changes to the standard in response to stakeholder comments. The revised requirements focus more specifically on the reliability objective of the standard which is to ensure that

system operators performing real-time, reliability-related tasks on the North American bulk electric system are competent to perform those reliability related tasks.

Please use this comment form to submit comments on the second draft of PER-005-1.

Standards Development Process

The *Reliability Standards Development Procedure* contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate. If you have any questions, please contact me at 813-468-5998 or maureen.long@nerc.net.

Sincerely,

Maureen E. Long

cc: Registered Ballot Body Registered Users
Standards Mailing List
NERC Roster

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. Standard drafting team appointed by the Standards Authorization Committee on June 21, 2006.
2. Standards drafting team posted draft standard for comment on September 27, 2006.
3. Standards drafting team responded to comments and posted the revised standard on August 15, 2007.

Proposed Action Plan and Description of Current Draft:

This is the second posting of the proposed standard and its associated implementation plan for a 45-day comment period, from August 15, 2007 to September 28, 2007.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments on the second draft of the proposed standard.	November 1, 2007
2. Obtain the Standards Committee's approval to move the standard forward to balloting.	November 15, 2007
3. Post the standard and implementation plan for a 30-day pre-ballot review.	December 1–January 1, 2008
4. Conduct an initial ballot for 10 days.	January 2–January 11, 2008
5. Respond to comments submitted with the initial ballot.	February 15, 2008
6. Conduct a recirculation ballot for 10 days.	February 15–February 25, 2008
7. Post for a 30-day preview for board.	March 1–March 31, 2008
8. Board adoption.	April 15, 2008

A. Introduction

1. Title: **System Personnel Training**

2. Number: PER-005-1

3. Purpose: To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System are competent to perform those reliability related tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.

4. Applicability:

4.1. Functional Entities:

4.1.1 Reliability Coordinator.

4.1.2 Balancing Authority.

4.1.3 Transmission Operator.

4.2. This standard applies to System Operator positions of the entities listed in 4.1 and their delegates who can directly, or through communications, impact reliability by producing a real-time response from the Bulk Electric System.

5. Proposed Effective Dates:

5.1. Requirement 3 in the standard shall become effective on the first day of first quarter after applicable regulatory approval (or the Reliability Standard otherwise becomes effective on the first day of first quarter after Board of Trustee adoption in jurisdictions where regulatory approval is not required).

5.2. Requirement 2 in the standard shall become effective 18 months after the first day of the first quarter following regulatory approval (or the Reliability Standard otherwise becomes effective 18 months after the first day of the first quarter after Board of Trustee adoption in those jurisdictions where regulatory approval is not required).

5.3. Requirement 1 and Requirement 4 shall become effective 36 months after the first day of the first quarter following regulatory approval (or the Reliability Standard otherwise becomes effective 36 months after the first day of the first quarter after Board of Trustee adoption in those jurisdictions where regulatory approval is not required).

B. Requirements

R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall complete the five phases of a systematic approach to training (SAT) (which includes analysis, design, development, implementation, and evaluation) to establish a new or modify an existing training program(s) that addresses Bulk Electric System (BES) company-specific reliability-related tasks performed by its System Operators. [Risk Factor: Medium] [Time Horizon: Long-term Planning]

R1.1. To create a company-specific list of BES reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Owner shall select all tasks performed by its System Operator positions from the Generic Task List (provided in Attachment A) and add other BES reliability-related tasks performed by its System Operator positions.

R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall assess at least annually the training needs of each System Operator position to determine the mis-match

between acceptable and actual performance capability. [Risk Factor: Medium] [Time Horizon: Long-term Planning]

R2.1. The assessment shall include identification of mis-matches between acceptable and actual performance capability that need to be addressed through future training.

R2.2. The assessment shall include identification of training required to perform new or revised tasks from the company-specific reliability related tasks.

R3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each System Operator with at least 32 hours annually of emergency operations and system restoration training. [Risk Factor: Medium] [Time Horizon: Long-term Planning]

R3.1. The emergency operations and system restoration training shall include the principles and procedures needed for recognizing and responding to emergencies, using drills, exercises or simulations of system conditions in subject areas from the Emergency Operations Topics (provided in Attachment B).

R3.1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall add or remove topics from the Emergency Operations Topics to reflect emergency operations and system restoration topics that apply to its organization.

R4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify the capabilities of each of its real-time System Operators to perform each assigned task on its list of company-specific BES reliability-related tasks. [Risk Factor: Medium] [Time Horizon: Long-term Planning]

C. Measures

M1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence of a SAT-developed BES System Operator training program with evidence of the following SAT-related outcomes:

M1.1. Analysis that results in a list of company-specific BES reliability-related tasks and measurable or observable criteria for desired performance for each task

M1.2. Design and development of training materials that result in learning objectives and content that is derived from results of training analysis

M1.3. Implementation of the training program, as identified in the training analysis

M1.4. Evaluations and assessments of training delivered to determine if learning objectives are met

M2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection the results of its latest assessment for each position, as specified in R2.

M3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide evidence that each System Operator has obtained 32 hours of emergency operations or system restoration training, as specified in R3.

M4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection verification of the capabilities for each real-time System Operator, as specified in R4.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Compliance Enforcement Authority (CEA)

1.2. Compliance Monitoring Period and Reset

The performance reset period for all requirements is one month.

1.3. Data Retention

For all requirements and measures, each Reliability Coordinator, Balancing Authority and Transmission Operator shall retain evidence of compliance for four years or since its most recent on-site compliance audit, whichever is greater. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall retain all data used to show evidence it is following or followed any mitigation plan associated with this standard.

The Compliance Monitor shall retain data, including self-certifications, since its last on-site audit and all documentation from other compliance monitoring methods used since the last on-site compliance audit. The Compliance Monitor shall retain any data used in mitigation plans associated with this standard.

1.4. Additional Compliance Information

Each Reliability Coordinator, Transmission Operator and Balancing Authority shall demonstrate compliance through self-certification submitted to its Compliance Enforcement Authority annually.

The Compliance Enforcement Authority shall conduct a scheduled on-site review once every three years, and may conduct spot checks and investigations to assess performance.

2. Violation Severity Levels

2.1. Lower: There shall be a lower violation for each subsection in which one or more of the following conditions exist:

2.1.1 None

2.1.2 None

2.1.3 The responsible entity did not add or remove topics from the Emergency Operations Topics that apply to their organization.

2.1.4 None

2.2. Moderate: There shall be a moderate violation for each subsection in which one or more of the following conditions exist:

2.2.1 The responsible entity has completed a list of company-specific reliability-related tasks from the Generic Task List (Provided in attachment A), and has started creating a list identifying all other reliability-related task that the company performs, but the list is not complete.

NOTE: If the entity violates R1.1, the entity is also in violation of R1, (failure to perform the Analysis phase of the SAT process).

2.2.2 The responsible entity has determined training required based on the mis-match between acceptable and actual performance capability but has not included the training identified in its current schedule.

2.2.3 The responsible entity provided at least 32 hours of training on emergency operations or system restoration, annually, but did not include training in subject areas listed in Attachment B.

2.2.4 None

2.3. High: There shall be a high violation for each subsection in which one or more of the following conditions exist: The responsible entity has only partially achieved the reliability objective of the requirement and is missing one or more significant elements.

2.3.1 The responsible entity has a system operator training program for all its system operator positions (identified in Section 4.2) but the entity did not use or provide evidence of use of one of the five phases of a SAT process listed below when establishing new system operator training: (R1)

- Analysis that results in a list of company-specific reliability-related tasks and measurable or observable criteria for desired performance for each task
- Design that results in learning objectives
- Develop training content that is derived from results of training analysis and learning objectives.
- Implementation of the training program, as identified in the training analysis
- Evaluations and assessments of training delivered to determine if learning objectives are met

OR

The responsible entity has a system operator training program for all its system operator positions (identified in Section 4.2) but the entity did not use or provide evidence of use of one of the five phases of a SAT process listed below when making modifications to an existing system operator training program:

- Analysis that results in a list of company-specific reliability-related tasks and measurable or observable criteria for desired performance for each task
- Design that results in learning objectives
- Develop training content that is derived from results of training analysis and learning objectives.
- Implementation of the training program, as identified in the training analysis
- Evaluations and assessments of training delivered to determine if learning objectives are met

OR

The responsible entity does not have a system operator training program based on the SAT process for one of its system operator positions (as identified in Section 4.2).

2.3.1.1 The responsible entity has started creating a list or has a partial list identifying its company specific list of reliability related tasks from the generic task list (in Attachment A), but the list is not complete

NOTE: If the entity violates R1.2, the entity is also in violation of R1, (failure to perform the implementation phase of the SAT process).

2.3.2 The responsible entity has not performed an assessment which includes identification of measurable or observable criteria for desired performance to each task for the determination of the training needs for one of its system operating position.

2.3.2.1 The responsible entity has not identified training required based on the mis-match between acceptable and actual performance capability.

2.3.3 The responsible entity provided to its system operators at least, 32 hours of emergency operations or system restoration training, annually, but not all its System Operators has completed or evidence shows will not have completed the required annual training.

2.3.3.1 The responsible entity provided at least 32 hours of training on emergency operations or system restoration, but the training did not include training in principles and procedures needed for effectively recognizing and responding to emergencies **OR**

The emergency operations or system restoration training delivery method did not include drills, exercises, or simulations of system conditions,

2.3.4 The responsible entity has performed an assessment of its System Operator's capabilities to perform each identified task that is on its company-specific reliability-related task, but not for each of its System Operators.

2.4. Severe: There shall be a severe violation for each subsection in which one or more of the following conditions exist. The responsible entity has failed to meet the reliability objective of the requirement.

2.4.1 The responsible entity has a system operator training program for all its system operator positions (identified in Section 4.2) but the entity did not use or provide evidence of use of two of the five phases of a SAT process listed below when establishing new system operator training:

- Analysis that results in a list of company-specific reliability-related tasks and measurable or observable criteria for desired performance for each task
- Design that results in learning objectives
- Develop training content that is derived from results of training analysis and learning objectives.
- Implementation of the training program, as identified in the training analysis
- Evaluations and assessments of training delivered to determine if learning objectives are met

OR

The responsible entity has a system operator training program for all its system operator positions (identified in Section 4.2) but the entity did not use or provide evidence of use of two of the five phases of a SAT processes listed below when making modifications to an existing system operator training program. :

- Analysis that results in a list of company-specific reliability-related tasks and measurable or observable criteria for desired performance for each task
- Design that results in learning objectives

- Develop training content that is derived from results of training analysis and learning objectives.
- Implementation of the training program, as identified in the training analysis
- Evaluations and assessments of training delivered to determine if learning objectives are met

OR

The responsible entity does not have a SAT program for its system operators.

2.4.1.1 The responsible entity failed to create a company specific list of reliability related tasks from the generic task list. (in attachment A) **OR**

The responsible entity failed to create a list of all other reliability-related task the company performs.

2.4.2 The responsible entity has not performed an assessment which includes identification of measurable or observable criteria for desired performance to each task for the determination of the training needs for two of its system operating position **OR**

The responsible entity has not performed an annual assessment as required by R2.

2.4.3 The responsible entity did not provide to its system operators at least 32 hours of emergency operations or system restoration training **OR**

The responsible entity has provided 32 hours of emergency operations and system restoration training but the training has not provided annually.

2.4.4 The responsible entity has not performed an assessment on its System Operator's capabilities to perform each identified task that is on its company-specific reliability-related task list

E. Regional Variances

None.

Version History

Version	Date	Action	Change Tracking

Attachment A: Generic Task List

Attachment A presents a generic list of tasks to assist with the creation of a company-specific list of reliability-related tasks. Entities shall add or remove from the list to create a list of reliability-related tasks applicable to their organization.

General Control Center Operations Tasks:

ITEM#	TYPE OF ACTIVITY	GENERAL CONTROL CENTER OPERATIONS TASKS
1	Communication	Provide real-time system information to the Reliability Coordinator.
2	Communication	Coordinate reliability processes and actions with and among other Reliability Coordinators.
3	Communication	Issue reliability alerts to Generator Operators, Load-Serving Entities, Transmission Operators, Transmission Service Providers, Balancing Authorities, Regional Councils, and NERC
4	Communication	Produce and publish system status information (e.g., OASIS, IRN, and RCIS)
5	Communication	Prepare and provide data to reliability coordinator for later inclusion in NERC reports
6	Communication	Ensure all balancing authorities or transmission operators are aware of solar magnetic disturbances (SMD) forecast information
7	Communication	Communicate the status of system conditions with appropriate reliability coordination offices
8	Communication	Communicate the status of system conditions with appropriate balancing authorities and/or transmission operators
9	Communication	Report disturbances to NERC following the guidelines within the U.S. Department of Energy's most recent Power System Emergency Reporting Procedures
10	Communication	Communicate with interconnected systems during normal and emergency conditions using established procedures
11	Communication	Coordinate operations between the host balancing authority or transmission operator and any transmission operating entities that exist within the host balancing authority and/or transmission operator's boundaries to ensure transmission reliability
12	Communication	Report to the regional council staff within 24 hours after a disturbance affecting your system has occurred
13	Communication	Report any disturbances or unusual occurrences, suspected or determined to be caused by sabotage to the appropriate systems, governmental agencies, and regulatory bodies
14	Communication	Coordinate reliability processes and actions with and among other reliability coordinators

ITEM#	TYPE OF ACTIVITY	GENERAL CONTROL CENTER OPERATIONS TASKS
15	Communication	Utilize the voice and data telecommunication systems as required while adhering to Interconnection and regional operating procedures
16	Monitor	Monitor real-time operational information from balancing authorities and transmission operators.
17	Monitor	Interpret SCADA-generated alarms and information, and then take appropriate actions to maintain system reliability
18	Monitor	Check data and verify accuracy of each metering point used by Supervisory Control and Data Acquisition (SCADA)
19	Monitor	Monitor performance of power system equipment and call out system personnel when appropriate
20	Monitor	Monitor system load and generation
21	Monitor	Ensure all special protection systems and special design features are in service as needed
22	Monitor	Monitor real-time market prices for accuracy
23	Monitor	Monitor and respond to alarms from status of special protective schemes
24	Monitor	Verify data used in operation
25	Monitor	Monitor the RCIS and respond to any information provided
26	Monitor	Monitor all reliability-related system parameters, such as MW, MVAR, voltage, and amps to determine system conditions
27	Monitor	Monitor and control access to the control center to prevent sabotage
28	Monitor	Monitor all reliability-related data within a reliability coordinator area
29	Monitor	Monitor and periodically test normal and emergency telecommunication systems that link with interconnected systems to ensure communications are adequate and continuous
30	Monitor	Monitor and respond to telecommunication alarms or failures and notify the appropriate personnel
31	Monitor	Monitor and maintain defined voltage profiles to ensure system reliability
32	Monitor	Monitor and validate telemetry data for accuracy
33	Monitor	Monitor control center systems and support equipment and call out appropriate assistance as needed
34	Operating	Analyze operations log, and oral information from system operator leaving shift
35	Operating	Maintain records of special protection system, special design feature, and transmission protection system mis-operations
36	Operating	Evaluate impact of current weather conditions on system operations

ITEM#	TYPE OF ACTIVITY	GENERAL CONTROL CENTER OPERATIONS TASKS
37	Operating	Evaluate system conditions and apply operating guides when applicable
38	Operating	Evaluate the extent of an outage or disturbance and develop a plan of restoration
39	Operating	Identify operating problems and deficiencies, and recommend corrective measures
40	Operating	Respond to performance survey requests
41	Operating	Provide input to ensure that the operations computer database is up to date
42	Operating	Prepare daily reports and logs generated to meet company and regulatory requirements
43	Operating	Adjust control systems to compensate for any equipment errors or failures
44	Operating	Perform same-day reliability analysis of the electric system
45	Operating	Perform next-day reliability analysis of the electric system
46	Operating	Analyze and authorize requests for equipment outages
47	Operating	Enforce operational reliability requirements
48	Operating	Compile regional system data reports
49	Operating	Operate primary and backup telecommunications systems as required
50	Operating	Schedule system telecommunications, telemetering, protection, and control equipment outages to ensure system reliability
51	Operating	Maintain current knowledge of power system modifications and additions
52	Operating	Ensure that every effort is made to remain connected to the Interconnection
53	Operating	Take action as necessary to protect the system if it becomes endangered by remaining interconnected
54	Operating	Apply guidelines, including lists of utility contact personnel, for reporting disturbances due to sabotage events
55	Operating	Direct to the appropriate entities those options necessary to relieve reliability threats and violations in a reliability coordinator area
56	Operating	Ensure the accuracy of current system status by updating necessary operating procedures, diagrams, and map board
57	Operating	Provide input to system planners to help maintain accuracy in system models used for reliability assessments
58	Operating	Evaluate, test, and/or confirm the accuracy of reliability assessment tools
59	Operating	Utilize interconnected operation services as needed to maintain system reliability

ITEM#	TYPE OF ACTIVITY	GENERAL CONTROL CENTER OPERATIONS TASKS
60	Operating	Utilize reactive resources from transmission and generator owners to maintain acceptable voltage profiles
61	Operating	Enforce compliance of operating reliability limits
62	Operating	Arm or verify that special protection systems are armed to meet system conditions (contingencies) as needed
63	Operating	Test, evaluate, and operate backup control center facilities/systems as needed
64	Operating	Implement procedures for the recognition of sabotage events on your facilities and multi-site sabotage affecting larger portions of the Interconnection
65	Operating	Implement specified procedural actions in the event of a FERC Standards of Conduct violation
66	Procedure	Complies with reliability requirements specified by Reliability Coordinator.
67	Procedure	Evaluate current operating practices and make recommendations for improvement to meet NERC reliability standards' requirements
68	Procedure	Implement system restoration procedures
69	Procedure	Maintain a working knowledge of regional, NERC, FERC, and company specific guides, policies, and standards

Transmission Tasks:

ITEM#	TYPE OF ACTIVITY	TRANSMISSION TASKS
1	Limits	Monitor and operate or direct the operations of the transmission system within equipment and facility ratings.
2	Operating	Notify Generator Operators of transmission system problems in compliance with NERC requirements.
3	Outage	Adjust transmission configuration to implement proposed transmission system outage plan
4	Outage	Build contingency case for scheduled outages for next day
5	Outage	Coordinate planned and unplanned transmission outages with all impacted systems to ensure transmission system reliability
6	Outage	Direct transmission operators to revise maintenance plans as required, and as permitted by agreements
7	Outage	Implement transmission outages to ensure system reliability
8	Outage	Initiate the cancellation of scheduled transmission work when system conditions require
9	Outage	Interpret relay targets, oscillograph readings, breaker operations, and field observations to determine proper restoration methods during forced outages
10	Outage	Notify others of any planned transmission changes that may impact the operation of their facilities
11	Outage	Perform reliability analysis to determine impact of both scheduled and forced transmission outages
12	Outage	Receive and review transmission maintenance plans from transmission operators for reliability assessment
13	Outage	Report transmission outages to the reliability coordinators and other affected utilities
14	Limits	Coordinate with impacted systems, and monitor actual and/or expected operating reliability limit violations and respond as required
15	Limits	Develop or calculate system operating limits
16	Limits	Direct transmission operators to take actions to mitigate interconnection reliability operating limits
17	Limits	Ensure all tie-line limits are not exceeded
18	Limits	Ensure that transmission contract paths are not exceeded
19	Limits	Identify, communicate, and direct actions to relieve reliability threats and limit violations in the reliability coordinator area
20	Limits	Initiate control actions resulting from thermal limit violations, considering the responsiveness of the system
21	Limits	Monitor and respond to transmission system equipment rating violations
22	Limits	Monitor bulk transmission elements to determine constraints and operating limit violations
23	Limits	Monitor major transmission lines, flow gates, and scheduling paths

ITEM#	TYPE OF ACTIVITY	TRANSMISSION TASKS
24	Limits	Coordinate with transmission operators and transmission service providers on real-time transmission system limitations.
25	Limits	Monitor interconnection reliability operating limits .
26	Limits	Recalculate interconnection reliability operating limits based on current or future conditions, and according to transmission and generator owners' specified equipment ratings
27	Limits	Develop interconnected operating reliability limits
28	Operating	Analyze/research any bulk system disturbances affecting your system
29	Operating	Respond to disturbance conditions
30	Operating	Monitor and operate transmission system within its designed capabilities
31	Operating	Monitor radio system for calls requiring response
32	Operating	Monitor system frequency and initiate a hotline conference call when frequency error exceeds specified limits
33	Operating	Monitor the condition of the transmission system and respond as required (including shedding firm load) to avoid voltage collapse and/or Interconnection separation
34	Operating	Monitor the voltages, and coordinate the reactive dispatch of transmission facilities, and the interconnections with neighboring systems
35	Operating	Develop special operating procedures to allow continued operation of the transmission system based on the results of a reliability analysis
36	Operating	Direct and/or control all energization and/or modification of new or existing facilities
37	Operating	Direct and/or control phase shifting transformer taps
38	Operating	Direct and/or control transmission switching
39	Operating	Direct and/or regulate the operation of the transmission system
40	Operating	Ensure adequate transmission facilities are available to meet external and internal requirements (real-time or hourly)
41	Operating	Implement corrective actions from transmission problems resulting from an underlying sub-transmission or distribution event (local reliability issues)
42	Operating	Maintain constant awareness of neighboring transmission system conditions
43	Operating	Maintain safe operating conditions for all persons and property within the transmission system
44	Operating	Operate control equipment to continuously and accurately meet its system and Interconnection control obligation and measure its performance
45	Operating	Perform reliability analysis (actual and contingency) for the reliability coordinator area
46	Operating	Provide oversight of transmission operational plans, direct revisions as required, and as permitted by agreements
47	Operating	Respond to solar magnetic disturbance (SMD) warnings as required by system

ITEM#	TYPE OF ACTIVITY	TRANSMISSION TASKS
		operating procedures
48	Operating	Specify interconnected operation services requirements for transmission reliability (e.g., reactive requirements, location of operating reserves)
49	Operating	Supervise and coordinate all activity at switching stations, generating stations, and transmission switchyards
50	Operating	Utilize load flow modeling tools to determine power flow changes and optimum system configurations during normal and emergency conditions
51	Voltage	Deploy reactive resources to maintain acceptable voltage profiles.
52	Voltage	Coordinate voltage reduction as requested by the balancing authority or as directed by the reliability coordinator.
53	Voltage	Direct voltage reduction
54	Voltage	Approve system voltage regulating equipment outages to ensure adequate system voltage and system reliability is maintained
55	Voltage	Coordinate operation of voltage control equipment with interconnected utilities
56	Voltage	Direct transmission operators to reduce voltage or shed load if needed to ensure balance in real-time
57	Voltage	Identify and respond to conditions likely to lead to voltage collapse
58	Voltage	Implement voltage reductions as directed by a transmission operator
59	Voltage	Minimize system voltage decay and prevent cascading outages
60	Voltage	Schedule system voltage regulating equipment outages to ensure adequate system voltage and system reliability is maintained
61	Voltage	Utilize HVDC systems' reactive power control capabilities as a voltage control tool when appropriate
62	Voltage	Utilize transmission line removal as a voltage control tool only if system studies indicate that system reliability will not be degraded below acceptable levels
63	Limits	Request reliability coordinator to mitigate equipment overloads.
64	Congestion	Identify special operating procedures that may be necessary to maintain acceptable transmission loading
65	Congestion	Initiate line loading relief procedures upon request of members of the Interconnection using appropriate priority levels
66	Congestion	Initiate transmission loading relief procedures to relieve potential or actual loading on a constrained facility
67	Congestion	Manage transmission loading by directing the redispatch of generators or reconfiguring the transmission system to mitigate impact, including the load curtailment process
68	Congestion	Notify all affected areas that line loading relief has been requested, and that corrective actions are required
69	Congestion	Request the reliability coordinator to mitigate equipment overloads
70	Congestion	Run day-ahead congestion management market

ITEM#	TYPE OF ACTIVITY	TRANSMISSION TASKS
71	Congestion	Run hour-ahead congestion management market to allocate available transmission capacities
72	Congestion	Use the results from an available transfer capability (ATC) calculator to determine the impact of an interchange transaction on the transmission system
73	Congestion	Utilize the Interchange Distribution Calculator to determine transaction curtailments for transmission load relief
74	Congestion	Calculate and post changes in available transmission capacity
75	Congestion	Implement terms of interruption for transmission services according to contractual provisions
76		Direct load shedding
77	Load	Coordinate load shedding as requested by the balancing authority or as directed by the reliability coordinator.
78	Load	Issue corrective actions (e.g., curtailments or load shedding) to transmission operators, transmission service providers
79	Load	Adjust both short-term and future forecasts using actual load data and correction factors
80	Load	Call for interruptible loads to be shed when required
81	Load	Collect individual load profiles and forecasts of end-users energy requirements, and develop overall load profiles
82	Load	Compile load forecasts from load-serving entities within a balancing area
83	Load	Coordinate load shedding, and load restoration with, or as directed by the reliability coordinator
84	Load	Coordinate or direct use of controllable loads that have been bid as interconnected operations services
85	Load	Develop both short-term and future forecasts using actual load data and correction factors
86	Load	Monitor an area’s estimated and actual loads
87	Load	Respond to light load conditions

Generation Tasks:

ITEM#	TYPE OF ACTIVITY	GENERATION TASKS
1	Balancing	Direct resources (generator operators and load-serving entities) to take action to ensure balance in real time
2	Balancing	Ensure adequate generation capacity is available to meet external and internal requirements (real-time, or hourly)
3	Balancing	Respond to manual time error correction requests by regional time error monitor
4	Balancing	Allocate generation resources to meet system requirements
5	Balancing	Allocate load resources to meet system requirements
6	Balancing	Monitor AGC to ensure compliance with NERC CPS1 and CPS2 standards
7	Balancing	Perform system configuration evaluation for dispatching of imbalance energy based on real-time conditions
8	Balancing	Minimize inadvertent flows, losses, and CPS1 and CPS2 criteria violations
9	Balancing	Monitor AGC performance to diagnose and identify telemetry problems
10	Balancing	Compare actual generator output with anticipated schedules, and take action to account for the difference
11	Balancing	Dispatch generation resources economically while maintaining system reliability
12	Balancing	Monitor time error and initiate corrections
13	Balancing	Manually calculate ACE as necessary
14	Balancing	Publish next-day market results
15	Balancing	Monitor ramping capability for requested interchange schedules
16	Balancing	Ensure that the balancing authority is satisfying its Interconnection frequency regulation obligation
17	Balancing	Ensure that the balancing authority's frequency bias value is continually set at the proper value
18	Balancing	Monitor ACE to determine if the calculation is correct
19	Balancing	Inform the appropriate balancing authority of the status of its overlap regulation service
20	Balancing	Verify that the regulating capacity is distributed equitably over as many units as possible
21	Balancing	Manage generation biasing to avoid reliability limit violations
22	Balancing	Monitor response of units to the AGC signals
23	Balancing	Operate the AGC system in tie-line bias control mode unless such operation is adverse to system or Interconnection reliability
24	Balancing	Obtain replacement energy upon a loss of any major generating or interchange resource
25	Balancing	Respond to generation losses, recognizing reliability restrictions to effectively maintain tie-line flows
26	Balancing	Apply the principles of economic dispatch to generating units

ITEM#	TYPE OF ACTIVITY	GENERATION TASKS
27	Balancing	Respond to generation losses, recognizing economic and reliability restrictions
28	Balancing	Publish hour-ahead market results
29	Balancing	Publish day-ahead market results
30	Balancing	Declare an Energy Emergency Alert (EEA) when generation resources and reserves are inadequate to meet demand
31	Balancing	Consult with other impacted balancing authorities, adjust the AGC algorithm for the proper time periods (on-peak and off-peak) to account for known tie-line metering errors
32	Balancing	Review generation commitments, dispatch, and load forecasts
33	Balancing	Receive and review generation operations plans and commitments from balancing authorities for reliability assessment
34	Balancing	Control or direct generation biasing to provide overlap regulation service to other balancing authorities in accordance with contractual obligations
35	Balancing	Ensure adequate energy resources are available to meet external and internal requirements (real-time or hourly)
36	Congestion	Direct the reduction or shedding of load if needed to ensure balance within its balancing authority area.
37	Congestion	Direct generator operators to implement redispatch for congestion management.
38	Congestion	Issue corrective actions (e.g., curtailments or load shedding) to balancing authorities.
39	Congestion	Procure alternate sources of energy when reliability coordinator curtails transactions or calls for generation re-dispatch
40	Congestion	Issue generation dispatch adjustments to mitigate transmission congestion
41	Congestion	Direct balancing authorities to take actions to mitigate interconnection reliability operating limits
42	Congestion	Control, direct, or manage generation dispatch to avoid transmission reliability limit violations
43	Operating	Monitor output of units ensuring that MW output is within operating limits
44	Operating	Monitor output of units ensuring that MVAr output is within operating limits
45	Operating	Operate generation to minimize inadvertent power flow
46	Operating	Operate the SCADA and analog systems to control generation and monitor telemetered information
47	Operating	Select proper mode of automatic generation control for system conditions
48	Operating	Suspend automatic generation control as required
49	Operating	Monitor system fuel reserves
50	Operating	Communicate with generating station regarding work for anticipated increases or decreases that may cause limit changes
51	Operating	Monitor generation production data for correctness and ensure that records are developed and maintained as required

ITEM#	TYPE OF ACTIVITY	GENERATION TASKS
52	Operating	Monitor output of units ensuring that MW output is operating according to schedules
53	Operating	Monitor output of units ensuring that MVAr output is operating according to schedules
54	Operating	Supervise and coordinate all activity at generating stations
55	Operating	Monitor hydro generation and pond levels
56	Operating	Monitor generating unit governors to verify their operational status
57	Operating	Initiate manual control of generation, and maintain scheduled interchange following an AGC system component failure
58	Operating	Operate power facilities in compliance with environmental standards (e.g., air quality, wildlife)
59	Operating	Ensure that the AGC and other vital control performance equipment are functioning properly when using the backup power supply following the loss of the primary power supply
60	Operating	Verify the accuracy of the AGC tie-line metering by comparing hourly MWh meter totals to the totals derived from tie-line meter registers
61	Operating	Monitor the status and availability of generator voltage regulators and/or power system stabilizers, and respond as required to deficiencies that may impact system reliability
62	Operating	Test/verify the reactive capability of generating units
63	Operating	Administer generator start-up and shutdown schedules
64	Operating	Report the status of generator automatic voltage regulators and/or power system stabilizers to transmission operators
65	Operating	Provide oversight of generation operational plans, direct revisions as required, and as permitted by agreements
66	Operating	Validate adequacy of resource plans (in near real time)
67	Operating	Procure interconnected operations services from generator owners to ensure voltage support from generating resources is adequate
68	Operating	Notify generator operators of voltage limitations, or equipment overloads that may impact, or are impacting generator operations
69	Outage	Inform the reliability coordinator and impacted balancing authorities of interchange schedule interruptions due to generation or load interruptions within its balancing authority area.
70	Outage	Plan next-day generation required to implement a proposed outage
71	Outage	Implement terms of interruption for generation services according to contractual provisions
72	Outage	Implement or delay generation outages to ensure system reliability
73	Outage	Coordinate ramp down of unit going on planned outage
74	Outage	Adjust generation levels to implement proposed transmission system outage plan
75	Outage	Perform reliability analysis to determine impact of both scheduled and forced

ITEM#	TYPE OF ACTIVITY	GENERATION TASKS
		generation outages
76	Outage	Separate or shut down generators that are unsafe to operate during or after an area disturbance
77	Outage	Direct generation operators to revise maintenance plans as required, and as permitted by agreements
78	Reserves	Apply operating reserves when needed
79	Reserves	Respond to reserve sharing group requests for emergencies
80	Reserves	Perform day-ahead ancillary services auction
81	Reserves	Produce list of resources to meet additional energy requirements (from ancillary service market) to purchase in real time
82	Reserves	Monitor and analyze regional reactive reserve availability
83	Reserves	Perform instantaneous reserve checks
84	Reserves	Dispatch operating reserves to alleviate system emergency conditions
85	Reserves	Perform hour-ahead ancillary services auction
86	Reserves	Monitor and analyze regional operating reserves availability
87	Reserves	Reestablish required operating reserve levels as soon as possible following a contingency that results in operating reserve usage
88	Reserves	Administer performance tests for generating resources providing ancillary services (e.g., spinning, regulation, unit ramp rates)
89	Reserves	Determine required quantities of ancillary services
90	Reserves	Determine reserves needed for the next hour
91	Reserves	Determine reserves needed for the next day
92	Reserves	Determine reserves needed for future days (long term)
93	Reserves	Monitor reactive reserve levels to ensure adequate reactive reserves exist and are properly located to provide for adequate voltage levels under normal and emergency conditions
94	Reserves	Restore reactive reserves to acceptable levels as soon as possible after use
95	Reserves	Ensure adequate spinning and operating reserves are on line
96	Reserves	Ensure adequate spinning and/or operating reserves are dispersed throughout the system
97	Reserves	Monitor available operating reserves and take corrective actions to correct deficiencies

Interchange Tasks:

ITEM#	TYPE OF ACTIVITY	INTERCHANGE TASKS
1	Communication	Communicate with real-time scheduler regarding the purchase of resources
2	Communication	Notify source balancing authority and transmission service providers, or transmission operators when an interchange transaction must be modified or terminated
3	Communication	Notify intermediate balancing authorities when an interchange transaction must be modified or terminated
4	Communication	Notify participants of transaction curtailments or adjustments observing NERC communication protocols
5	Communication	Notify sink balancing authority or transmission service provider when an interchange transaction needs to be modified or terminated
6	Communication	Notify the interchange authority when interchange transactions are cancelled or terminated
7	Congestion	Curtail, terminate, or modify interchange transaction requests that aggravate operating limits
8	Congestion	Curtail transactions as directed across interfaces
9	Congestion	Ensure that the maximum net scheduled interchange with other balancing authorities does not exceed the available transfer capability
10	Congestion	Ensure that all curtailments are properly applied per reliability coordinators instructions
11	Congestion	Analyze the impact of proposed requests for transmission service and interchange schedules on the bulk power system
12	Congestion	Reestablish curtailed interchange transactions with affected balancing authorities or transmission operators
13	Congestion	Coordinate reallocation and reloading of interchange transactions during transmission loading relief procedures
14	Monitor	Monitor status of NERC interchange transaction tags to ensure timely approval and implementation
15	Operating	Arrange transactions for energy to serve projected demand
16	Operating	Determine proper use of dynamic schedules of remote generating units as to their contribution to operating reserves
17	Operating	Manually calculate net interchange when needed
18	Operating	Determine energy excess after meeting load, reserves, and contract obligations
19	Operating	Verify the accuracy of time error monitoring equipment
20	Operating	Maintain the confidentiality of interchange transactions
21	Operating	Protect the confidentiality of all interchange transaction information
22	Operating	Check inadvertent interchange accounts with other balancing authorities at the end of each day

ITEM#	TYPE OF ACTIVITY	INTERCHANGE TASKS
23	Operating	Ensure that all appropriate transmission rights are assigned to all energy schedules (e.g., OASIS reservations) prior to their implementation
24	Operating	Agree upon daily schedule totals and energy imbalance totals with balancing authorities or transmission operators and other schedulers as needed
25	Operating	Assess, approve, or deny interchange transaction requests based on reliability analysis from the ATC calculator
26	Operating	Create NERC interchange transaction tag with all required information
27	Operating	Implement or terminate interchange transactions when needed
28	Operating	Adjust interchange transactions
29	Operating	Monitor the electronic (interchange) tagging system for accuracy of information (e-tagging)
30	Operating	Ensure all import and export schedule totals are checked for accuracy and correctness with each utility at the end of the day
31	Operating	Ensure interchange transactions are conducted in accordance with regional and NERC standards
32	Operating	Implement inadvertent interchange payback schedules with other entities
33	Operating	Submit a request to obtain the necessary transmission reservations to implement transactions
34	Operating	Manually calculate ACE as necessary
35	Operating	Adjust transfers across interfaces to maintain system reliability
36	Operating	Submit NERC interchange transaction tag to transmission providers and balancing authority or transmission operators on the scheduling path within proper timeframe
37	Operating	Secure appropriate transmission rights in response to system emergencies
38	Operating	Enter interchange transactions into the control area's scheduled interchange
39	Operating	Coordinate with any controlled interface operators (e.g., DC ties) that are part of an interchange transaction-scheduling path
40	Operating	Participate in system planning studies to determine transfer capabilities and operating limits
41	Operating	Check and validate hourly tie-line data
42	Operating	Monitor inadvertent accumulations in both the on-peak and off-peak accounts
43	Operating	Maintain knowledge of existing and proposed Interconnection agreements and contracts
44	Operating	Maintain accurate settlement records for bulk power sales and purchases
45	Operating	Apply tariffs associated with rates and services uniformly to all parties
46	Operating	Evaluate and respond to customer requests for transmission and ancillary services via the OASIS
47	Operating	Ensure that the ramp rate, start and end times, energy profile, and losses are communicated to all parties in the transaction

ITEM#	TYPE OF ACTIVITY	INTERCHANGE TASKS
48	Operating	Identify potential parallel flow impacts on pending interchange
49	Operating	Approve interchange transactions based upon a reliability perspective
50	Operating	Monitor dynamic energy schedules for the appropriate use of transmission rights
51	Operating	Administer interchange scheduling and recordkeeping requirements with interconnected balancing authorities or transmission operators or other utilities
52	Operating	Implement interchange schedules
53	Operating	Approve or deny bilateral schedules from the reliability perspective
54	Operating	Confirm and approve interchange transactions from ramping ability perspective
55	Operating	Enter interchange transaction information into reliability assessment tools
56	Operating	Determine and post available transfer capability values
57	Operating	Secure energy and transmission services to serve end-use customers
58	Operating	Perform after-the-hour checkout of actual and scheduled interchange with adjacent balancing authorities
59	Operating	Approve or deny transmission service requests in accordance with any tariff requirements (OASIS)
60	Operating	Ensure transmission reliability margins, total transfer capabilities and available transfer capabilities are correctly posted

Emergency Operations Tasks:

ITEM#	TYPE OF ACTIVITY	EMERGENCY OPERATIONS TASKS
1	Capacity	Request emergency energy upon loss of a resource
2	Capacity	Respond to capacity deficiency
3	Capacity	Respond to loss of energy resources within allowable regional or pool timeframe
4	Capacity	Prepare for a capacity emergency by bringing on all available generation
5	Capacity	Prepare for a capacity emergency by postponing equipment maintenance
6	Capacity	Prepare for a capacity emergency by scheduling emergency energy purchases
7	Capacity	Prepare for a capacity emergency by reducing load
8	Capacity	Prepare for a capacity emergency by initiating voltage reductions
9	Capacity	Prepare for a capacity emergency by requesting emergency assistance from other systems
10	Capacity	Schedule available emergency assistance with as much advance notice as possible given a capacity emergency
11	Capacity	Utilize the assistance provided by the Interconnection's frequency bias (in a capacity emergency) only for the time period necessary to utilize operating reserves
12	Capacity	Utilize the assistance provided by the Interconnection's frequency bias (in a capacity emergency) only for the time period necessary to analyze ability to recover using own resources
13	Capacity	Utilize the assistance provided by the Interconnection's frequency bias (in a capacity emergency) only for the time period necessary to schedule emergency assistance from others
14	Freq	Direct corrective actions to correct abnormal frequency
15	Load Shed	Manually shed load to alleviate system emergency conditions
16	Load Shed	Following the activation of automatic load shedding schemes, restore system load as appropriate for current system conditions and in coordination with adjacent systems
17	Load Shed	Following the activation of automatic load shedding schemes, shed additional load manually if there is insufficient generation to support the connected load
18	Load Shed	Following the activation of automatic load shedding schemes, monitor system voltage levels to ensure high voltage conditions do not develop
19	Load Shed	Following the activation of automatic load shedding schemes, monitor system frequency to ensure high frequency conditions do not develop
20	Load Shed	Following the activation of automatic load shedding schemes, monitor the performance of any automatic load restoration relays
21	Load Shed	Following the activation of automatic load shedding schemes, resynchronize transmission at preplanned locations if possible
22	Load Shed	Following the activation of automatic load shedding schemes, disable automatic underfrequency relays if system conditions warrant
23	Load Shed	Direct distribution providers to shed load when required for system reliability

ITEM#	TYPE OF ACTIVITY	EMERGENCY OPERATIONS TASKS
24	Load Shed	Use manual load shedding to prevent imminent separation from the Interconnection due to transmission overloads or to prevent voltage collapse
25	Procedure	Implement emergency procedures.
26	Procedure	Notify the reliability coordinator of the implementation of its own emergency procedures.
27	Procedure	Comply with reliability coordinators' instructions during emergency conditions
28	Procedure	Direct implementation of emergency procedures
29	Procedure	Maintain knowledge of existing and proposed emergency assistance agreements and contracts
30	Procedure	Mandate the sale or purchase of energy to optimize reliability
31	Procedure	Respond to system emergencies and frequency deviations to meet local, regional, and NERC DCS requirements
32	Procedure	Notify appropriate personnel or departments in event of an emergency
33	Procedure	Perform or direct actions such as starting generation, canceling pre-scheduled maintenance, schedule interchange, or shed load to return the system to a secure state
34	Procedure	Perform regular testing of emergency procedures to determine preparedness and alertness of shift personnel
35	Procedure	Provide emergency services coordination for field personnel
36	Procedure	Respond to generation losses, recognizing economic and reliability restrictions to effectively maintain tie-line flows
37	Procedure	Respond to requests for emergency assistance from neighboring systems
38	Procedure	Declare system emergencies
39	Procedure	Develop and/or implement contingency plans when facilities/equipment are forced out of service
40	Procedure	Formulate a plan to implement corrective actions when equipment ratings are exceeded or anticipated to be exceeded
41	Procedure	Use sub-regional, regional, and NERC hotline to coordinate actions during emergency conditions
42	Procedure	Schedule emergency energy when needed and create interchange transaction tags within one hour
43	Procedure	Coordinate response to system emergencies
44	Procedure	Request emergency assistance from neighboring systems
45	Procedure	Assume sole control of designated telecommunication systems for use during an emergency
46	Procedure	Implement emergency procedures related to generating resources within a balancing area as directed by the reliability coordinator
47	Restoration	Direct the restoration of the transmission system following a major system outage, load shedding, islanding, or blackout

ITEM#	TYPE OF ACTIVITY	EMERGENCY OPERATIONS TASKS
48	Restoration	Ensure adequate protective relaying exists during all phases of the system restoration sequence
49	Restoration	Test or simulate system restoration procedures to validate restoration plans
50	Restoration	Following a partial or total system shutdown, implement the appropriate provisions and procedures of the system's restoration plan in a coordinated manner with adjacent systems
51	Restoration	Following a partial or total system shutdown, arrange for start-up and/or emergency power for generation units as required
52	Restoration	Following a partial or total system shutdown, arrange for and utilize emergency (backup) telecommunications facilities as required
53	Restoration	Following a partial or total system shutdown, restore the integrity of the Interconnection as soon as possible
54	Transmission	Formulate a plan to implement corrective actions when an operating reliability limit violation is anticipated
55	Transmission	Determine the cause and extent of transmission system disturbances and interruptions and the impact on other facilities
56	Transmission	Apply relief measures as necessary to permit re-synchronizing and reconnecting to the Interconnection when separated from the Interconnection
57	Transmission	Use manual load shedding to prevent imminent separation from the Interconnection due to transmission overloads, or to prevent voltage collapse
58	Transmission	Implement load shedding as directed by a transmission operator
59	Transmission	Identify and take appropriate actions when partial or full system islanding occurs
60	Voltage	Implement voltage reductions to alleviate system emergency conditions
61	Voltage	Identify and take appropriate actions when a partial or full system voltage collapse occurs

Attachment B: Emergency Operations Topics

These topics are identified as meeting the topic criteria for Emergency Operations training per Requirement 3 of this standard.

A. Recognition and Response to System Emergencies

1. Emergency drills and responses
2. Communication tools, protocols, coordination
3. Operating from backup control centers
4. System operations during unstudied situations
5. System Protection
6. Geomagnetic disturbances weather impacts on system operations
7. System Monitoring – voltage, equipment loading
8. Real-time contingency analysis
9. Offline system analysis tools
10. Monitoring backup plans
11. Sabotage, physical, and cyber threats and responses

B. Operating Policies Related to Emergency Operations

1. NERC standards that identify emergency operations practices (e.g. EOP Standards)
2. Regional reliability operating policies
3. Sub-regional policies and procedures
4. ISO/RTO policies and procedures

C. Power System Restoration Philosophy and Practices

1. Black start
2. Interconnection of islands – building islands
3. Load shedding – automatic (under-frequency and under-voltage) and manual
4. Load restoration philosophies

D. Interconnected Power System Operations

1. Operations coordination
2. Special protections systems
3. Special operating guides
4. Voltage and reactive control, including responding to eminent voltage collapse
5. Understanding the concepts of Interconnection Reliability Operating Limits versus System Operating Limits
6. DC tie operations and procedures during system emergencies
7. Thermal and dynamic limits
8. Unscheduled flow mitigation − congestion management
9. Local and regional line loading procedures
10. Radial load and generation operations and procedures
11. Tie line operations
12. E-tagging and Interchange Scheduling
13. Generating unit operating characteristics and limits, especially regarding reactive capabilities and the relationship between real and reactive output

E. Technologies and Tools

1. Forecasting tools
2. Power system study tools
3. Interchange Distribution Calculator (IDC)

F. Market Operations as They Relate to Emergency Operations

1. Market rules
2. Locational Marginal Pricing **(**LMP)
3. Transmission rights
4. OASIS
5. Tariffs
6. Fuel management
7. Real-time, hour-ahead and day-ahead tools

A. Introduction

1. Title: **Reliability Coordination — Staffing**

2. Number: PER-004-2

3. Purpose:

Reliability Coordinators must have sufficient, competent staff to perform the Reliability Coordinator functions.

4. Applicability:

4.1. Reliability Coordinators.

5. Proposed Effective Date:

- Requirements 2 and 5 retired when PER-005-1 Requirement 3 becomes effective.
- Requirements 3 and 4 retired when PER-005-1 Requirements 1 and 4 become effective.

B. Requirements

R1. Each Reliability Coordinator shall be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

R2. Reliability Coordinator operating personnel shall place particular attention on SOLs and IROLs and inter-tie facility limits. The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times.

C. Measures

None.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an

extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

Each Reliability Coordinator shall keep evidence of compliance for the previous two calendar years plus the current year.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

1.4. Additional Compliance Information

None.

2. Levels of Non-Compliance for a Reliability Coordinator

To be developed

2.1. Level 1: Not applicable.

2.2. Level 2: Not applicable.

2.3. Level 3: Not applicable.

2.4. Level 4:

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised

A. Introduction

1. **Title:** **Reliability Coordination — Staffing**

2. **Number:** PER-004-~~1~~2

3. **Purpose:**

   Reliability Coordinators must have sufficient, competent staff to perform the Reliability Coordinator functions.

4. **Applicability:**

   4.1. Reliability Coordinators.

5. **Proposed Effective Date:** ~~January 1, 2007~~

   - Requirements 2 and 5 retired when PER-005-1 Requirement 3 becomes effective.
   - Requirements 3 and 4 retired when PER-005-1 Requirements 1 and 4 become effective.

B. Requirements

R1. Each Reliability Coordinator shall be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

~~**R2.**All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.~~

~~**R3.**Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.~~

~~**R4.**Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.~~

~~**R5.**~~**R2.** Reliability Coordinator operating personnel shall place particular attention on SOLs and IROLs and inter-tie facility limits. The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times.

C. Measures

None.

~~**M1.**The Reliability Coordinator shall have and provide upon request training records that confirm that each of its operating personnel has completed a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel, as specified in Requirement 2.~~

M2.Each Reliability Coordinator shall have and provide upon request evidence that could include but is not limited to, a documented training program and individual training records for each of its operating personnel or other equivalent evidence that will be used to confirm that it meets Requirements 3 and 4.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

Each Reliability Coordinator shall keep evidence of compliance for the previous two calendar years plus the current year.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

1.4. Additional Compliance Information

None.

2. Levels of Non-Compliance for a Reliability Coordinator

To be developed

2.1. Level 1: Not applicable.

2.2. Level 2: Not applicable.

2.3. Level 3: Not applicable.

2.4. Level 4: ~~There shall be a separate Level 4 non-compliance, for every one of the following requirements that is in violation:~~

~~**2.4.1**One or more of its shift operating personnel did not complete a minimum of five days per year of training and drills using realistic simulations of system emergencies in the past year. (R2)~~

~~**2.4.2**No evidence operating personnel have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas. (R3)~~

~~**2.4.3**No evidence operating personnel have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area. (R4)~~

E. Regional Differences

~~1.~~None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised

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Implementation Plan for PER-005-1 — System Personnel Training

Prerequisite Approvals

There are no other reliability standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this standard can be implemented.

Modified Standards

PER-002-0 should be retired when PER-005-0 becomes effective.

PER-004-1 Requirement 2 should be retired when PER-005-1 Requirement 3 becomes effective.

PER-004-1 Requirements 3 and 4 should be retired when PER-005-1 Requirements 1 and 4 become effective.

The following tables summaries the mapping of the PER-004-1 requirements to PER-005-1 and other standard requirements:

PER-004-1 Requirement	PER-005-1 and other Requirements
R2. All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.	R3. Each Reliability Coordinator, Balancing Authority and Transmission Operator entity shall provide each applicable System Operator with at least 32 hours annually of emergency operations and system restoration training. PER-005-1 R3 includes PER-004-1 R2 and therefore PER-004-1 R2 should be removed. (Note that the five days per year of training has been clarified to mean 32 hours of training.)
R3. Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall complete the five phases of a systematic approach to training (SAT) (which includes analysis, design, development, implementation, and evaluation) to establish a new or modify an existing training program(s) that addresses all Bulk Electric System company-specific reliability-related tasks. R4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify the capabilities of each real-time System Operator to perform each assigned task on its list of company-specific reliability-related tasks. [Risk Factor: Medium] [Time Horizon: Long-term Planning] The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R3) duplicate PER-004-1 R3 and therefore PER-004-1 R3 should be removed.
R4. Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff,	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall complete the five phases of a systematic approach to training (SAT) (which includes analysis, design, development, implementation, and evaluation) to establish a new or modify an existing training

PER-004-1 Requirement	PER-005-1 and other Requirements
operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.	program(s) that addresses all Bulk Electric System company-specific reliability-related tasks. R4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify the capabilities of each real-time System Operator to perform each assigned task on its list of company-specific reliability-related tasks. [Risk Factor: Medium] [Time Horizon: Long-term Planning] The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R3) duplicate PER-004-1 R4 and therefore PER-004-1 R4 should be removed.

A redline version of PER-004-1 is posted with this Implementation Plan.

Compliance with Standards

Once this standard becomes effective, the responsible entities identified in the applicability section of the standard must comply with the requirements. These include:

- Reliability Coordinators,
- Balancing Authorities,
- Transmission Operators, and
- Reliability Coordinator, Balancing Authority and Transmission Operator delegates who can directly, or through communications, impact reliability by producing a real-time response from the Bulk Electric System.

Proposed Effective Date

Compliance with PER-005 shall be implemented over a three-year period, as follows:

- Requirement 3 in the standard shall become effective on the first day of first quarter after applicable regulatory approval (or the Reliability Standard otherwise becomes effective on the first day of first quarter after Board of Trustee adoption in jurisdictions where regulatory approval is not required).
- Requirement 2 in the standard shall become effective 18 months after the first day of the first quarter following regulatory approval (or the Reliability Standard otherwise becomes effective 18 months after the first day of the first quarter after Board of Trustees adoption in those jurisdictions where regulatory approval is not required).
- Requirement 1 and Requirement 4 shall become effective 36 months after the first day of the first quarter following regulatory approval (or the Reliability Standard otherwise becomes effective 36 months after the first day of the first quarter after Board of Trustees adoption in those jurisdictions where regulatory approval is not required).

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PER-005 System Operator Training
Reference Document

Reference #1: Determining Task Performance Requirements

The purpose of this reference is to provide guidance in writing a performance standard that describes the desired outcome of a task. A standard for acceptable performance should be in either measurable or observable terms.

Clear standards of performance are necessary for an individual to know when he or she has completed the task and to ensure agreement between employees and their supervisors on the objective of a task. Performance standards answer the following questions:

- How timely must the task be performed?
  Or
- How accurately must the task be performed?
  Or
- With what quality must it be performed?
  Or
- What response or outcome must be achieved?

When a performance standard is quantifiable, successful performance is more easily demonstrated. For example, in the following task statement, the criteria for successful performance is to return system loading to within normal operating limits, which is a number that can be easily verified.

> Given a System Operating Limit violation on the transmission system, implement the correct procedure for the circumstances to mitigate loading to within normal operating limits.

Even when the outcome of a task cannot be measured as a number, it may still be observable. The next example contains performance criteria that is qualitative in nature, that is, it can be verified as either correct or not, but does not involve a numerical result.

> Given a tag submitted for scheduling, ensure that all transmission rights are assigned to the tag per the company Tariff and in compliance with NERC and NAESB standards.

116-390 Village Boulevard, Princeton, New Jersey 08540-5721
Phone: 609.452.8060 ▪ Fax: 609.452.9550 ▪ www.nerc.com

Reference #2: Systematic Approach to Training References:

The following list of hyperlinks identifies references for the NERC Standard PER-005 to assist with the application of a systematic approach to training:

(1) DOE-HDBK-1078-94, A Systematic Approach to Training
http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf

(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910
http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html

(3) ADDIE – 1975, Florida State University
http://www.nwlink.com/~donclark/history_isd/addie.html

(4) DOE Standard - Table-Top Needs Analysis
DOE-HDBK-1103-96
http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf

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Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs and ISOs
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments:

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:

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Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Ameren Services	
Organization:		
Telephone:	314-554-2839	
E-mail:	jhackman@ameren.com	
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☒	1 — Transmission Owners
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Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Yes, although as proposed it is unclear how that objective will be determined.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: Remove from SR&B include only in Training

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: Yes an assessment is important. No, the standard as written is not defined with time parameters and is unachievable.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: While qualified trained operators are important and thus traiining might appear to imply a greater VRF, the mechanics of training should be considered LOWER.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

☒ No

Comments: The required documentation needed for these measures is not well defined. Is a journal sufficient?, or a certificate?

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Once again the time period is not well defined.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Training should not be Severe or HIgh, those should be reserved for direct links to reliability.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:

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Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☒ **RFC**	☐	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: There are a number of concerns with assessing the training needs of each system operator position in this standard. First, the function of assessing the performance of system operators should be covered by a separate Standard. Combining Training Requirements with Performance Standards causes confusion and creates a very voluminous standard. The purpose of three of the four requirements is assessment rather than training. Second, althought doing an annual assessment of each operators performance is a desirable goal, doing a measurement of each operators performance with each company specific BES reliablity-related task is over-burdensome if even possible.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The 32 hours of emergency operations and system restoratio training should be located in the System Personnel Training Standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: As stated in the comments provided to question 1, this is a desirable goal. However, there are several issues that make the described assessment problematic. Many of the company-specific reliability-related tasks are very difficult to measure and some are not measureable. The time and manpower required to conduct the measurement of all assigned tasks is overly burdensome and unreasonable.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The implementation schedule is too aggressive with regards to Requirement 2. Requirements 1 and 4 should be implemented completely before Requirement 2. A more reasonable implementation schedule is 18 months for Requirement 1 followed by 18 months for Requirement 4 and then an additional 18 months for Requirement 2.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☒ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
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Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: R2.1 - Yes, as long as the interpretation and intent is truly "capability", but not for actual performance of every reliability task for which the position is responsible. Out of the possible 374 reliability tasks (Attachment A to the standard), some tasks may be rarely done, or may be done only during emergency or emergency training, such as annual restoration/black-start drills and simulation excersises. Some emergency tasks can be actually performed to gage performance, whereas other emergency tasks are more of a table-top simulation without actually performing the task. Operator performance may be based on satisfactorily completing the annual training to gain knowledge to know how, where and when to perform the task(s), foster acceptable "capability", but, not actually require performing the task(s) to achieve actual results. Based on this criteria, the standard's measurment and audit for R2.1 must allow for the "training and knowledge base for task performance", to be the measure or assessment of the "performance capability" of such emergency tasks.

   R2.1 could possibly be reworded as follows or in some other fashion to help ensure auditing procedures follow the intent (intent explained in the "Background Information" preceding these comment questions):
   ---- The assessment shall include identification of mismatches between acceptable and actual performance capability, and/or the identification of mismatches between the acceptable and actual knowledge base for performance capability, that need to be addressed for future training. -----

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: This requirement definitely should only be in one standard. It is presently in the PER-002 standard as a 5-day training requirement, and therefore should be in the PER-005, since PER-002 is being retired. It would also help in audits of the standard, to have the training record auditing done with the PER training standard records rather than the EOP standards.

   The new EOP-005-2 standard draft 1 does not directly refer to the 32 hours or 5 days of emergency training. R9 of this EOP-005-2 draft does refer to the emergency operating topics, but does not specify annual training or the 5 day (32 hour) requirement, as does the present PER-002-0 standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

☒ Yes

☒ No

Comments: Yes, with the requirement focus on "capabilities" to perform, and with the objective being to qualify the operator for the journey operating level of their operating position during their initial/progression training. (See the comments in Question 1 above)

Yes, but the revision to existing training curriculums/resourses, development of new resourses, development of performance evaluation methods/tools, and on-going training assessment of new operators, will be essential for most transmission operating entities to comply with this requirement. This standard will therefore require a significant increase in training & development staff to comply, thus placing greater financial burdon on the entities.

However, we feel that how the assessment of each individual operator is conducted should be left up to the operating entity. As a part of an annual review system operators are felt to be qualified then and that should be sufficient to determine capabilities of an operator. If a new job task is implemented during that year then it is felt that the necessary training for that task should be given based on whatever method the specific entity feels meets that requirement.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: R1. - No. This should be a "low" risk factor". An entity could do very good training without using the SAT, still identify reliability tasks, and not be at risk. Not providing a training program or avenue of training could be a "medium" risk factor, but not using SAT (ADDIE) is a "low" risk factor. SAT (ADDIE) is a great guide, but it doesn't warrant being a part of the standard requirement.

The true requirement of R1 should be the requirement of entities to have a training program with training objectives to support the identified reliability tasks.

If the only requirement of R1 was the requirement to identify Reliability Tasks (R1.1), a "Medium" risk factor might be appropriate.

Renumbering of R1.1 and making it R2, thus separating this requirement from the SAT requirement, would be an improvement, and would allow two different risk factors. (Also see comments of Question 6 and Question 11 for R1)

R2. - Yes. "Medium" risk is OK.

R3. - Yes. "Medium" risk factor is OK.

R4. - Yes. "Medium" risk is OK.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: M1 - This measurement should require evidence of a training program that supports training and identification of reliability tasks, but the approach to training should be the choice of the operating entity. (R1 - SAT should be a guide given as a reference document, but should not be a requirement and measurement of the standard; see additional comment in Question 11).

   M2 - OK

   M3 - OK

   M4 - OK.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: D1.3. - We do not see the benefit of increasing the data retention from 3 years to 4 years. NERC Readiness evaluations and Regional Compliance audits are based on 3 years. PER-002-0 present data retention compliance is 3 years. Holding data since last audit (3 years) should be adequate.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: 2.2.1 - Renumbering of R1.1 and making it R2, thus separating the reliability task identification requirement from the SAT requirement, would be an improvement, and would allow two different violation security levels.

   2.3.1 & 2.4.1 - Violation of SAT should be "lower", not "high" or "severe". An entity may produce adequate training with proper performance results without using SAT. Many entities produce qualified operators today without SAT. SAT (ADDIE) should be a guide attached to the standard or as a reference document, but should not be the standard. The violation should be on "not performing training for identified tasks", rather than how you created the training. If training produces the desired results, how you did it should not be the measure, but rather, the measure should be satisfactory operator performance capability to perform.

   2.3.1.1 - the "Note" refers to R1.2, but there is no R1.2.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

☒ No

Comments: R2 – We agree with the 36 months but recommend the implementation time for R2 be changed from 18 to 36 months as R2.2 is conflicting with R1 implementation time.

R2.2 - This part of the standard requires the assessment to include analysis of new or revised tasks for the specific company/entity and job position, which is specified for task identification in requirement R1.1. This is conflicting since the implementation plan time for R2 is 18 months, and the implementation time for R1, to have the task list identified with comparison to the reliability tasks of Attachment A, is 36 months.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: R1 - We believe R1 should not mandate the approach to training, but should only mandate identification of reliability tasks and a training program that has objectives that support the reliability tasks. R1 attempts to eliminate informal and impromptu type training for initial and continuing training. Good, informal training should still be allowed in any training program, as the approach can still be proper and reap proper results, without having extensive documentation of a systematic process. Over the years, there have been many hours of informal training that has reaped satisfactory and above satisfactory results in performance and progression of system operators. Though SAT can be an improvement in some cases, it is not an improvement in all cases.

SAT requirements should be a guide given as a reference document, but should not be a requirement and measurement of the standard.

R1.1. - Typographical error. Transmission "Owner" should be Transmission "Operator".

R3 – We believe requirement R3 should be for “NERC Certified System Operators” and offer those operators hired mid-year or who have hardships causing extended absences that prevent accumulating the required 32 hours, relief from the requirement. We suggest re-wording as follows or in some other fashion to offer relief for special circumstances as mentioned above:
----“Each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each NERC Certified System Operator with at least 32 hours annually of emergency operations and system restoration training. NERC Certified System Operators with only 6-9 months of on-shift operating time due to mid-year hiring or hardships shall be required 16 hours annually of emergency operations and system restoration training. NERC Certified System Operators who have less than 6 months operating time due to mid-year hiring or hardships shall be exempt from the annual emergency operations training requirement.”----
2.3.3 - Violation Severity Levels – Reword in accordance with the suggested rewording of R3 requirement above to reflect NERC Certified System Operators and reduced hour requirements for special circumstances such as mid-year hiring or hardships.

R3.1. – The wording of requirement R3.3 in parenthesis "(provided in Attachment B)" infers all topics of the attachment must be included in the 32 hours annual emergency training, and does not take into account the requirement of R3.1.1. We believe the intent should be "selected topics" from Attachment B. We believe R3.1 should be re-worded as follows:
----"The emergency operations and system restoration training shall include the principles and procedures needed for recognizing and responding to emergencies, using drills, exercises or simulations of system conditions in subject areas selected from the responsible entity's applicable Emergency Operations Topics listing developed from Attachment B and according to the requirement of R3.1.1."-------

2.2.3 – Violation Severity Levels – Re-word to correspond to R3.1 rewording as follows:
-----"The responsible entity provided the minimum 32 hours of training on emergency operations or system restoration, annually for all system operators, but some hours provided included topics not listed in the responsible entity's list required by R3.1.1.-----

2.3.4. – Violation Severity Levels – Reword as follows for clarity of intent:
----"The responsible entity has performed an assessment of its System Operator's Capabilities to perform each identified task that is on its company-specific reliability-related task list, for some but not all of its System Operators.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☒ **MRO** ☐ **NPCC** ☒ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☒	1 — Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

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The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: ATC believes that the annual analysis should be on the position of system operators not for each system operator.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: It's our position that all training related requirements should be in PER standards. The SDT should review all NERC standards and move other training specific requirements into this standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

☐ No

Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: ATC does not agree with the assignment of High (Violation Severity Level) for a failure to use one of the five phases of a SAT. In practice if an entity does not use one of the five phases of a SAT in one training program then it will be assessed a high violation severity level. ATC believe that this designation is too great for the violation. NERC needs to look at the number of training programs and to the extent of the failure. Did every training program fail to include one of the five phases or was this only in a small minority of the programs.

   We would ask that the SDT develop more reasonable violations severity levels for this standard.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: The Standard requires applicable entities to develop a task list using Appendix A as a starting point. The standard allows entities to add and delete from the task list (Appendix A) as they determined necessary. So, would Applicability section (4.2) only apply if a TOP, BA or RC identifies a task and then delegates that task to a System Operator not covered under the Applicability 4.1? In other words, if a RC identifies a task in their list and then states that the task is performed by a non-RC System Operator, that delegate would then have to follow this standard.

If this is the case, who will be audited by the Regional Entities to confirm that the delegated System Operator is complying with the standard? Would the delegated System Operator have to be registered with NERC as a user, owner or operator of the BPS?

The topic of delegation of requirements has come up in other standards and it's our position that NERC should develop a solution to the issue instead of looking to the individual SDT to come up with individual solutions. In this case the Applicable Entities are allowed to develop their own list using Appendix A because of this ATC believes that no entities will fall under 4.2 of the Applicability section.

ATC request that 4.2 of the Applicability section be deleted from this standard.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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E-mail:	michael.scott@aps.com	
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☒ **WECC** ☐ **NA – Not Applicable**	☒	1 — Transmission Owners
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	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The task list for each position should be reviewed annually for updates, and suggestions for training must be solicited from Leads and Supervisors in order to improve operator performance and keep the program current. But that's not what you said in this statement.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The System Personnel Training Standard only.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Experienced NERC-certified personnel may be hired as operators, and some NERC-certified incumbents have 25-30 years experience. It would certainly be a waste of resources to assess these personnel's knowledge, skill, and attitude and then send these personnel through weeks of Initial Training and the myriad of exams involved. There should be a "grand-fathering" provision for experienced personnel, such as a exemption based on observation of job performance.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Since an approved training program based on SAT may not be ready for 36 months per 5.3, the assessment of training mismatch cannot be done until then. So, Requirement 2 should also become effective 36 months after the standard's approval.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

☐ No

Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: M1.4. The "E" in ADDIE means evaluations and assessments of training effectiveness. It does not directly refer to student evaluation, of whether "learning objectives are met" (i.e. exams, which are administered during Implementation). "E"valuation more often refers to Feedback, Exam Performance, Post-Training Evaluation, and Return on Investment studies.

M4. (See Item 3 above) This "Measure" can never be consistently applied. Regarding this requirement, the Background Information on Page 3 of this document says "the standard does not specify how entities will measure this capability", leaving nothing but a future of debates during Audit Week.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Based on your definitions, the problem descriptions written for each of the four severity levels will ALL constitute "Severe" violations.

For example, Item 2.1.3 lists topics from the EO list that were not added/removed when applicable, which constitutes a failure of the Analysis process and a failure of the Evaluation process too, because you didn't detect the problem and fix it. Since two phases of SAT were not done, this condition automatically meets the definition of 2.4 as "Severe". The same with item 2.2.1 and 2.3.1.

This area needs work.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: See Item 4 above.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:
    We question the Applicability of this standard to "delegates" referenced in 4.2. Depending on how this requirement is interpreted, the scope of the training project we're undertaking could grow exponentially.

    The R.1.1 requirement seems to demand that entities use the Generic Task List during their analysis phase. If another commercially available list is currently being used, is it invalidated by this standard?

    The details provided in R2.1 and R2.2 could be easily included in the verbiage of R2 for simplicity.

    The details provided in R3.1 and R3.1.1 could be easily included in the verbiage of R3 for simplicity.

    Draft 2 of PER-005-1 is a big improvement over Draft 1.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
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The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: A yearly evaluation for each system operator is a very large burden for any organization. Initial training for system operators should address the required job skill knowledge and tasks required for acceptable performance capability. New job tasks are trained for and implimented as new systems, tools and job functions become necessary. The routine functions of the system operator position are not the issue and EOPS training and evaluation should take care of the rest.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The trend seems to be to place some kind of training requirement in everything (FERC NOPRS, NERC Standards and Regional Standards.) My opinion is that training requirements should all be in one place and I would prefer that to be PER-005.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Again, a huge burden on every organization. It is not the routine operating tasks that cause system outages. System Operators need to be evaluated on their knowledge of tasks that are required when the BES is operating with little or no margins, either voltage, reactive or thermal. System operators also need to be tested to determine if they can recognize when their system is at it's operating limits, not the periods when adaquate reserves more than compensate for sloppy operating!

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Foor instance R2.3.1 is a Violation Risk Factor of High. SAT is not necessary; adaquate training programs exist currently without the benefit of SAT; therefore, a Violation Risk Factor of Low is more reasonable.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: M1- Removal of the term "job task analysis" but still requiring one is not much of a change from the previous draft. Again requiring every entity to have a SAT based training program is unnecessary.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Disagree based on SAT requirement.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
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The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Requirement 1 in this draft of the standard requires a full blown job task analysis be completed for each company and to maintain the JTA. We cannot support this requirement at this time. The requirement also requires all training outside of NERC CE training to follow the SAT. We cannot support this beyond the NERC CE requirements at this time or to develop it over the next 36 months. We do not have the staff to complete this beyond NERC CE requirements at this time and believe we should be focussing on NERC CE requirements until we can comfortably follow the SAT for CE first.

   Requirement 2: We cannot support R2 if the assessment of the System Operator position goes beyond the NERC CE program requirements to meet and maintain NERC Certification.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: All Reliability related training required in a standard should be listed in the PER Standards. There should only be one place to see where Reliability required training to meet standards are listed.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: We cannot support R4 if the System Operator performance evaluation goes beyond the NERC CE program requirements to meet and maintain NERC Certification.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: The requirement time horizon as Long Term Planning is okay.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: These requirements changes are generally administrative issues and should be risk factor Low.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: From the comments we have provided we are suggesting the changes to the requirements are overall not acceptable, therefore the measures would have to be changed to reflect the changes to the requirements that are acceptable.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: 1.2. We are not clear what a performance reset period is but we are okay with it; 1.3 and 1.4 okay

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The way the Violation Severity Levels are written are too complicated to follow and many are open to interpretation. As an example the words for the High level say in part "…..is missing one or more significant elements". what does the word significant mean to the person who is reading this……significant to whom, the audit team; too vague?
   We do not agree with any of the words written for the severity levels; the standard and requirements are short on words and severity levels have explicit severity levels that are not detailed in the requirements. We again want to say that this will be a huge onerous task to place on any entity based on the implementation plan and we cannot support it.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: While we appreciate the time frames for implementation of some requirements at 18 months and 36 months would be helpful to allow implementation of these requirements we do not support the requirements as they are written as they are too onerous and not achievable in the time frames without hiring many more staff and applying lots of money to the make it happen. So if we do not agree with the Requirements, we cannot agree to the time phases.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: NERC CE and Certification of System Operators as a requirement was a huge step in dealing with issues that came from the Blackout recommendations. Meeting that requirement was also a good step in requiring training for SO's that meets a SAT process. And the continued training for SO's that support Certification went a long way to meet the Blackout recommendations regarding restoration, simulation and situational awareness. NERC would be better served by working with companies and training providers to make NERC Continuing Education fit the SAT and make sure all are comfortable with using it all the time when dealing with CE to maintain Certification. When that is accomplished moving forward on all training requirements starting with a proper JTA and all other training using the complete SAT could be looked at. We believe we are many years away from that.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
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The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The CAISO agrees that an operator needs-assessment be done at least annually, the IRC supports continuous assessment of operator training needs. That said, the CAISO does not agree that a prescriptive standardized process is desirable or feasible. Performance evaluation is a corporate responsibility not a NERC standard. The CAISO would propose that this standard be refocused from a standard that requires a set annual needs-assessment, to a standard mandating a given number of hours of continuous training through NERC-accredited Training programs.

   Please refer to our comments in response to Question 11.

   Discussion:
   An operator training needs-assessment is not a requirement that can be developed easily. Having an industry-wide competency level lends itself to debates, possibly without an agreement, particularly given there is already an operator certification examination. A standard that leaves definition of competency to be developed by the individual responsible entities would subject to requirement to a "fill-in-the-blank" category, which FERC has stated must be eliminated.

   A fixed annual needs-assessment may devalue a continuous needs-assessment program. A fixed annual program by definition focuses on a one-time evaluation. With such fixed programs, organizations and operators may be more focused on performing and passing a given evaluation, then focusing on a comprehensive evaluation of individual needs - an evaluation that involves subjective analysis such as interpersonal skills under stress evaluation.

   A fixed annual needs-assessment may be useful from an auditor perspective, but it does not reflect the varied undefined times that training occurs.

   To identify a 'need" an auditable test evaluation would require a standardized scoring system. Does a score of X% indicate a need for training? Indeed, how would a test identify in which area the training need exists? Requirement 2 imposes a subjective obligation of "acceptable" capability. R2.1 mandates that "mismatches" be identified. However, the draft standard does not identify a mismatch.

   Today, training is provided for all changes that a corporate entity believes needs training. Similarly, corporate entities may not even provide training on new tasks that are self-explanatory. R2.2 mandates the compliance entity identify which tasks fall in which category. That subjectivity is reasonable but it is not what one would consider an industry standard.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication

of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

Comments: The CAISO would prefer that all training comments are contained within the training standards.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

☐ Yes

☒ No

Comments: If there were a possibility of developing and quantifying a viable level of competency, then the CAISO would support such a requirement. However, the CAISO believes that the determination of this competency level and assessment of the mismatch would be troublesome and likely not measurable.

The idea of entity-identified task lists is the antithesis of the word standard. The question of training is paramount to everyone. The issue raised here is whether or not it is sensible to write an Industry Training standard. Assessing the capabilities of a given System Operator is an art not a science. To mandate such a art can (and likely will) result in entities being tied up in labor hearings for a long period of time debating whether or not the operator's 'capability level' is effectively measured by the NERC standard. Requirement 4 does not provide any quantifiable measure for identifying an operator's capabilities. Picking and choosing from a list makes this requirement even more subjective then a NERC-wide standard should be.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to. The CCC will have final say on these elements in any case; therefore the SDT would save itself some effort by focusing on the primary elements before weighing in on the compliance elements.

However, given the question being posed:

The CAISO believes that assigning long-term planning to all the requirements is inappropriate, if not over-simplistic. For example, the annual assessment of the training need and the subsequent development-of/revision-to a training program, as the requirement implies, occurs once every 12 months. This is normally regarded as an operations planning time frame if violation of this requirement is to be mitigated.

Training in each of the requirements can cross over time horizons.
Requirement 1 (which has not been vetted) states the entity must use the SAT 5 phases for all reliability-related tasks. If a new task that requires training is created for implementation tomorrow, how would that training program fall under long-term planning?

Requirement 4 - when a new task arises, (assuming one accepts the premise of the requirement itself) then shouldn't the assessment take place as soon as possible?

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to. The CCC and FERC will have final say on these VRFs, therefore the SDT would save itself some effort by focusing on the primary elements before weighing in on the compliance elements.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Measure 1 is not quantifiable. What evidence will demonstrate 'desired performance', if the desired performance is not defined in the standard itself?

   Because Requirement 2 is subjective, Measurement 2 is meaningless in the context of a NERC reliability standard.

   Measurement 3 is proof of attendance and not a true indicator of reliability impacts.

   Measurement 4 requires that the subjective verification of the "capabilities" be documented. Even if such a measurement could be standardized, as written, this measurement requires nothing more that documentation of ineptness.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to.

   We note the following:
   1. The entity "Compliance Enforcement Authority" is a new term. It is not found in the Functional Model.

   2. The compliance elements should not impose requirements that are not in the standard itself. To require a responsible entity to maintain records on whether it is following or followed any mitigation plan associated with the standard is outside the standard itself. The standard does not address mitigation plans anywhere. This also applies to the requirement on the Compliance Monitor to retain any data used in mitigation plans associated with this standard, particularly since the Compliance Monitor does not appear on the Applicability List at the beginning of the standard.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to.

We note that a SEVERE VSL is applied for missing evidence of using two phases of the SAT; as well as applying a SEVERE VSL for not having a program at all. This would result in an organization that inadvertently is missing evidence being held to the same VSL level as an organization that consciously has no program at all.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to.

We do not support this standard as written, and therefore do not agree with the implementation schedule at this time.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☒ Yes

☐ No

Comments: The lack of objectivity in these requirements will conflict with labor union contracts. In addition the draft standard does not meet NERC or FERC requirements regarding clarity and measurability; nor does the draft meet the FERC objection to fill-in-the-blank standards.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:
It appears that the intent of this Standard is to standardize and clarify what is and is not appropriate training materials for acceptance into the NERC Continuing Education Program. This is not well understood by the industry. If this is indeed the case, the CAISO supports such an effort. The way the existing draft is being interpretted by the industry, however, is that this will be an additional requirement, over and above (and possibly in conflict with) the NERC Certification maintenance requirements currently contained in the NERC Continuing Education Program.

The CAISO agrees that:
- Training is a critical function for our industry.

- NERC should mandate training time (i.e. minimum number of Continuing Education hours - limited to predefined critical functions) be required to ensure operators are provided experience with critical tools and procedures necessary to meet NERC's reliability standards. This could be coupled to maintaining NERC Operator certification. That would innocent operators to take the training or risk losing their personal certification, and would incent the organizations to ensure the training or risk not complying with the standard to use only-NERC certified operators.

- General in-house training programs must be permitted to be structured to the varied ad hoc needs of the given organizations, their tools and their environment, and not subject to NERC standards.

- Critical training be provided by accredited programs, and that NERC may desire to accredit programs used to provide CEH on those critical topics (e.g. Emergency Operations; Blackstart).

- the result of a Training standard should be an operator that is prepared to handle that operators system; the result should NOT be the production and storage of paperwork.

TheCAISO does not agree that:

- It is necessary that every organization has its own accredited program. As written, R1 requires that responsible entities complete the five phases of a systematic approach to training (SAT), which includes analysis, design, development, implementation, and evaluation) to establish a new or modify an existing training program. We do not agree that this should be a requirement.

The requirement should be for the responsible entity receive training to help system operation personnel to acquire the competency to perform the applicable tasks pertaining to the RC, TOP and BA functions that the entity is responsible for or assigned. The IRC neither endorses nor disapproves the SAT process as a good approach>

However, how any training program is arrived at (i.e. what approach it takes) is not important and should not be a standard. If so inclined, NERC itself could offer an SAT-based Training program. How could one make an argument that using other approaches to arrive at a training program that (a) list the tasks and competency level required to perform the task, (b) include the minimum requirements stipulated in this standard such as the 32 hours emergency training, (c) has provision for a training schedule, review process, etc. is not an acceptable approach?

Performance and capability are subjective ideas. Given all of the tests and training, no one can predict how a human will act. To state that the person is 'incapable' is a very strong statement and can only be made on a case-by-case basis - which by definition precludes a NERC standard.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Brad Calhoun	
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Telephone:	713-207-2744	
E-mail:	brad.calhoun@centerpointenergy.com	
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☒ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: R2 is confusing. Assessing the training requirements of a system operator position is different than assessing the training needs of an individual system operator. This requirement should be reworded to clarify what asssement is being required. A definition of the term "system operator position" should be added to the Glossary of Terms.

   Identification of company-specific system operator position tasks may be reasonable on an annual basis or whenever tasks are added or deleted; however, assessment of individual system operator training needs should be over a three year period to align with existing NERC System Operator Certification and Continuing Education Programs.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The requirement should be in the System Personnel Training Standard. Further, any training requirements should be grouped into training standards. When necessary, other standards should reference the appropriate training standard for any specific requirements.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:
   R4 is duplicative because the NERC System Operator Certification Program already certifies the competency of system operators. A revised generic task list (Attachment A) could be used to develop specific courses to form the curriculum for emergency operations and reliability related topics within existing NERC training programs. The Continuing Education Program already assesses the courses before it grants Continuing Education Hours used for recertification. Likewise, a revised generic task list could could be used for the Continuing Education Program's curriculum.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

☐ No

Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: CenterPoint Energy agrees with the implementation plan for R3; however, we disagree with the implementation plan for R1, R2, and R4. If PER-005 is modified to align itself with the other NERC training programs that certify system operator competency, we would agree with a three year implementation period.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:
Instead of establishing a new collection of competency measurements that are already defined by the NERC System Operator Certification Program and the NERC Continuing Education Program, PER-005 should align itself with these existing programs. The standard would have a greater benefit to the industry if it established the curriculum for these existing programs. PER-005 could provide the training topics necessary for advanced learning of reliability-related tasks.

The NERC Continuing Education Program uses Individual Learning Activity applications to determine if the course meets its criteria. Such review of applications presently includes whether the SAT process was utlilized. This is another reason why PER-005 should form the curriculum to be used in the NERC Continuing Education Program. Then, the Continuing Education Program would review each course application for compliance through the use of the NERC Continuing Education Review Panel.

Per R1.1, specific tasks must be selected from the proposed generic task list (Attachment A) if the task is performed by the entity's system operator positions. The generic task list includes tasks that are NOT reliability-related. For example Item 22 states "monitor real-time market proces for accuracy." The generic task list should be reviewed and edited to include ONLY reliability-related tasks.

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Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
☒ **FRCC**	☐	2 — RTOs and ISOs
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
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The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:
   R2.1 does not appear "clear and unambiguous". How can a position have a mis-match between acceptable and actual performance?
   Is the intent to identify each operators deficiencies for each task every year?
   Or to identify new tasks (covered in R2.2)?

   If the answer is "to annually identify the mis-match between acceptable and actual performance a specific assesment must be done on every task that remains on the Attachment A (after modification per R1.1.)", then it is overly burdensome and is not required in the verbiage to R4, which only requires a one-time verification.

   However, it is reasonable to verify that the modified (per R1.1) Generic Task List remains current at least annually.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: Not only should this requirement should be in the System personnel Training Standard, a checklist should be made so that ALL training requirements are included in this standard. One example is the annual training on Cyber Security (CIP).

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The verification of satisfactory performance of "each assigned task" is overly burdensome. Although, since this is a one-time verification only per R4, I can live with it. If I have to verify each task for each operator every year, it is way overboard.

   Who determines if my verification is adequate? Is this my call, the RA team or the Compliance Audit? If I only have to satisfy myself, it is okay.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

☐ No

Comments: Each requirement has a "Long-term Planning" horizon.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: These are not real time requirements. Any potential impact to the BES will be adequately captured in other approved standards and violation severities. These should all be Lower!

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:
M1. This measure has no allowance for the use of outside vendors in a training plan. If a NERC Certified Provider is utilized, the entity should not be required to retain the providers documentation as required in M1.2 and M1.4. the retention of "evaluations and assessments" may include the use of end-of-course examinations which would violate exam security for the vendor if the entity has to retain them. The fact that CEH's were awarded should be sufficient for M1.2 and M1.4 in the case where a CEH provider (even if it was the parent entity) is utilized.

The industry has spent a lot of time, money and effort into getting the CEH program up and running. It has become the only way to maintain NERC Certification. Lets use it to it's fullest potential. If it is good enough for Credential maintenance, it should be good enough for the training program compliance. Violators of the CEH provider rules already have a method to be scrutinized.

M2. This relates to Question 1. Is the intent to retain documentation for the Operator position or the Operator that mans the position and sits at the desk?

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:
D1.2 - What is the compliance Monitoring Period? Should the Reset period be one month when these are apparently annual requirements?

D1.3 - Why is data retention four years? What is the benefit of an additional year of records past the last compliance audit which is required every 3 years per D1.4?
- Is the retention of "any data used in mitigation plans associarted with this standard" intended to be an indefenite retention? This is not clear. Is the "mitigation plan" intended to be mitigation for the entity to get in compliance with the standard, or for the individual operator to achieve the desired performance level per the entity's training plan?

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: No VSL should be high or severe for a requirement that is not a real time requirement.

   D2.4.1.1 - What if the entity reviewed Attachemnt A and did not identify anything else that was performed? What if they did identify several other items, but missed only one. These should not be violations. If the entity made a good faith effort, it should be compliant. The selection of a task from the list, or adding it to the list, is subjective for the entity. As such, how can a compliance team come in and apply another subjective criteria to the list?

   D2.4.3 - Grammatically incorect. Second paragraph should end " training has not BEEN provided annually."

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:
    A4.2 - "producing a real-time response from the Bulk Electric System" is not clear and unambiguous. Turning on a light switch (to power the runway landing lights for the highly trained pilots) produces "a real-time response".

    R3 - How is a "new" employee handled? If I hire an operator and he gets NERC Certified in November (or later) I feel I should not have to complete all 32 hours of emergency training.

    Attachment A - The removal or addition of any item(s) is subjective. While I understand it is only a starting point, whose subjectivity will be used when determining compliance to this standard. Many of these items are poorly worded if they are intended to be a measurable task. I will be paring the list down substantially to remove redundant requirements, and clarify the remaining.

Attachment B - Intro paragraph is not entirely true. This list must be modified per R3.1.1 and will then contain the "company specific" topics for Emergency operations.

Although training, or the lack of, played a part in the August 14, 2003 blackout, it was not the only thing found to need improvement. This standard places the burden of improvement of operations of the BES on the training system for the system operator. This is unfair to the majority of entities and operators who have adequate training in place and are not afraid to shed load when needed. This has placed the emphasis on proper documentation instead of performance. It will be expensive and turn into a paperwork nightmare to implement and to audit.

A Systematic Approach to Training is not required to have a good training program. It IS required to be a CEH provider for NERC Credential Maintenance. But NERC has maintained a very pointed separation of the Training Standard and the CEH program and Credential Maintenance. This standard is trying to apply the CEH provider requirements to ALL entity training programs. It should not be the default system for every entity.

Implementation of this standard as written will be a nightmare to implement and audit. It will result in lots of money spent for very little return on investment. It will dilute the effectiveness of many good programs out there and I doubt will force any of the mediocre ones into being good ones.

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Ed Davis	
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E-mail:	edavis@entergy.com	
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☒ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☒	1 — Transmission Owners
	☐	2 — RTOs and ISOs
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
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	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments:

   Our response depends on who, what, where, when, and how the authors mean with the statement - "assess the training needs for each system operator position".

   We agree that each employer should evaluate the performance and training needs of each employee, probably on an annual basis. If that is what the authors meant then we agree and we request the authors make that intent more clear in the standard itself.

   In addition, we are concerned about who evaluates and determines "acceptable performance" and "actual performance". We suggest the authors make it clear the employer makes that evaluation and determination, not some third party.

   Throughout this draft standard the authors use the term "System Operator position" to mean a job category and a physical person with no distinction between the two applications. Please make it obvious in each application whether the requirement applies to a job category or a physical person.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments:

   We suggest the training requirement R3 be in the training standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments:

   Our response depend on who, what, where, when, and how the authors mean with the statement - "assess the training needs for each system operator position".

We agree that each employer should evaluate the performance and training needs of each employee, probably on an annual basis. If that is what the authors meant then we agree and we request the authors make that intent more clear in the standard itself.

In addition, we are concerned about who evaluates and determines "acceptable performance" and "actual performance". We suggest the authors make it clear the employer makes that evaluation and determination, not some third party.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

   Please add Time Horizon values to R1.1, R2.1, R2.2 and R3.1 and R3.1.1. It is not obvious the Time Horizon assigned to the Requirement also applies to the sub-requirement.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

   Please add VRFs to R1.1, R2.1, R2.2 and R3.1 and R3.1.1. It is not obvious the VRFs assigned to the Requirement also applies to the sub-requirement.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:

   As written, M1 is intended to measure the "process" used to derive the result of each step of the SAT. We disagree with that measure. We suggest the Measure for R1 be a review of the "results" of each step of the SAT, not measure the process for development of those results.

   Given the specific wording of these requirements and measures, we are not sure what is being measured in M2. What is being measured in M2? Please be more specific in the words. For instance, is the "latest assessment for each position" and assessment of the job category, or an assessment of the individual employees performing in that position? Please make this measure significantly more clear and specific.

   M3 should be deleted and moved to EOP-005.

   We have similar issues with M4 as for M2, and a similar interpretation of the issues identified above for M2. What constitutes verification of the capabilities? Is this verification of a person's performance appraisal? Is this a verification of the basic

training requirements of a person to fill a position, like having a BSEE from an accredited university? Please make this measure significantly more clear and specific.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:

   VSL 2.2.1 contains the statement that if the entity violates R1.1, the entity is also in violation of R1. We believe this is being penalized twice for the same infraction and should be deleted.

   Item 2.2.3 states "but did not include training in the subject areas listed in Attachment B". The Requirement R3.1 is that Attachment B is modified by the BA, TOP or RC. Therefore, this VSL should be changed to "… listed in R3.1.1".

   Due to the formating of the VSL documentation it is difficult to be sure what are the intended VSLs of section 2.3.1, 2.3.2, 2.3.3, and 2.4.1.1. For instance, VSL is High in 2.3.2 for not performing an assessment. Is the VSL also High for section 2.3.2.1 which states the "entity has not identified training required"? Or, is 2.3.2.1 instead of 2.3.2?

   Again, the Severe VSL identified for 2.4.1 has three parts identified as "OR". However, there is an additional reference 2.4.1.1 which is part of 2.4.1. Should there be an "AND", or an "OR" infront of 2.4.1.1?

   We suggest VSLs for the 32 hour training in R3, and the VSLs for R4 are OK.

   We also suggest the VSL criteria be redistributed for each of the Requirements R1 and R2. We think 2.4.2, R2, an entity who has "not performed an assessment which includes … to each task …" should have a much lower VSL applied to it than an entity that does " not have a SAT program" at all. Both of these criteria are considered Severe in the draft standard.

   Starting with Severe, we agree Severe should be assigned to having NO SAT program, 2.4.1 for R1, and the criteria that the entity has not performed an assessment of operator capabilities, 2.4.4 for R4. These are the only two actions that rise to the level of Severe.

   We suggest all the criteria for R1 and R2 be moved down one level, from Severe to High, from High to Moderate, and Moderate to Lower, except the criteria as noted above.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:

   R3, 32 hours of training, may be effective the first day of the first quarter but compliance with that requirement will take up 10 weeks to train all the system operators due to shift rotations and training schedules. Please make this change for compliance.

   The timing for implementation of the other requirements seems out of order. First the SAT needs to be performed, R1. Then, the capabilities of the operators need to be verified R4 before a mis-match can be performed R2, from which training needs are identified and implemented. We suggest it will take 18 months to complete R1, followed by 18 months to complete R4, and finally a third 18 months to complete R2.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:

    The draft standard extends the requirements to an undefined phrase: "delegates who can directly, or through communications, impact reliability by producing a real-time response from the Bulk Electric System". We do not understand the meaning, scope or extent of who or what constitutes "delegates" that might fall under this standard. We request this phrase be deleted from this and all similar standards. We also request the authors not include any other phrases like "delegates" or any other similar attempts to extend job functions of other RC, BA or TOP positions into the definition of System Operator.

    R1.1 requires the creation of a company specific list of BES reliability-related tasks, the creation of which could be considered part of R1 itself and does not need to be a separate requirement. In addition, an entity will be penalized twice for not developing this list, once for R1.1 and penalized again for violating R1. Therefore, R1.1 should be deleted and considered part of R1, performing the Analysis phase of the SAT process. SHOULD WE SUGGEST R1.1 BE DELETED, OR SHOULD IT BE A SEPARATE REQUIREMENT? LEAVING R1.1 AS IT IS COULD BE CONFUSING.

    The intent and meaning of the wording "acceptable" and "actual" performance capability used in R2 as they are applied to a System Operator Position is not clear . Please clarify the intent and meaning of R2. A position can have tasks assigned to it with acceptable or defined, performance criteria. A position can not have "actual" performance capability; a person performing that task can have "actual" performance capability. If the intent of R2 is to determine the mis-match between a persons actual performance capability of a task and the acceptable performance criteria for that task then please so state that one

part applies to a person and one part to the position. If it is not the intent, then please clarify the meaning of this section.

PER-004-2, as revised, contains two requirements: one to maintain staffing 24/7, and the other to place attention on SOLs, IROLs and inter-tie facility limits, and to ensure protocols are in place. There are no measures for these three requirements. Please add measures for these three requirements.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☒ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
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	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Entergy Services, Inc. System Planning & Operation (Energy)

Lead Contact: Will Franklin

Contact Organization: Entergy Services, Inc

Contact Segment: 6

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Additional Member Name	Additional Member Organization	Region*	Segment*
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David Plant	Entergy Services, Inc. System Planning & Operation (Energy)	SERC	6
Margaret Hebert	Entergy Services, Inc. System Planning & Operation (Energy)	SERC	6
Gary Kirkley	Entergy Services, Inc. System Planning & Operation (Energy)	SERC	6
Jerry Stout	Entergy Services, Inc. System Planning & Operation (Energy)	SERC	6

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

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- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: It is unclear as to whether this is referring to the job category or each individual. This needs to be clarified. One can only infer that this is meant to design the training program for the job category and evaluate it annually for necessary changes. Consider adding a sub-requirement or within this requirement to indicate that measurable and observable criteria must also be developed along with each task identified (since "measureable and observable criteria" is a Measure of this Requirement).

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: We recommend that the requirement remain in the training standard and be removed from the Blackstart Standard project. The training standard is the appropriate place for consolidating and delineating any training requirements.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Is this meant to be a one time assessment? If so, then we agree since attempting to do this every year would be unreasonable. If it is mean to be recurring, then consider adding the requirement of a periodic assessment of a sample of tasks on an ongoing basis within the entity's own training program.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

☒ No

Comments: We believe these items to be in the LOWER risk factor category.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: M1, as currently written, is a review of an entity's entire training program from inception. This may be too broad of a Measure.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: In general, the VSLs are extremely complex and take up more of the standard than the actual requirements, measures and compliance sections. Condense and simplify.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: PER-005-1 Proposed effective dates: R1 & R2 should be implemented simultaneously, since R2.2 cannot be performed until R1.1 is completed. However, 36 months to have a training program implemented is reasonable.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:
PER-005-1 Applicability 4.2 : is this meaning that an operator performing a function per an approved procedure or under orders from an RC/BA/TO have training and be under a training program as outlined? This may be excessive application of the training

standard. One could speculate that each power plant operator could fall under this because they operate a unit with MW and MVAR output, which creates a real time response from the BES.

PER-005-1 R3, 3.1, 3.1.1 : the words "and system restoration" should be removed unless the system restoration topics in Attachment B are required. As written, R3 and sub requirements imply that some of the 32 hours must come from system restoration training. If that is correct then state the number of hours. Note that the title of Attachment B contains the term "Emergency Operations Topics" only, even though system restoration topics are covered under Section C.

PER-005-1 Attachment A
General Control Center Operations Tasks, Item 22: Monitoring of real-time prices for accuracy should not be listed as a reliability-related task. Reliability and pricing are distinctly different. Is the intent to monitor the impact to reliability that real-time pricing is having?
Generation Tasks Item 14: Publishing next-day market results should not be a reliability-related task.

PER-004-2 Proposed Effective Dates: the bullets are extremely confusing and refer to requirements that aren't even listed. If approval of these standards deletes a pre-existing requirement immediately, there is no need to even mention it in this section (assuming that these standards are balloted together). Otherwise, list ALL of the requirements in the Requirements section and then the list of when they would no longer be in effect in the effective date section.

PER-004-2 Compliance Monitoring Responsibility : Should this be the Compliance Enforcement Authority (as stated in PER-005-1)?

PER-004-2 Compliance Monitoring: There is only a need to list the self certification. All requirements in the standards can be subject to monitoring under the other methods (spot check, periodic audit, triggered) and there is no need to list them here.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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Telephone:	512-248-6338	
E-mail:	kgrammer@ercot.com	
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☒ **ERCOT**	☐	1 — Transmission Owners
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1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: Should read "mismatch between the previoulsy developed task list and current and/or new task". "Performance capabilities" relates more to personnel that it does to positions.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: 1) Should go in PER-005. 2) However, it is recommend that the 32 hour requirement be remove completely because the CEH program captures the intent of this requirement. Furthermore, the 32 hours of emergency training is tracked on a different schedule than CEH requirments and creates an additional and confusing set of record keeping processes. Record keeping can be simplified without reducing the level and quality of training with the additional benefit of removing the audit liablitiy created by the need to track each operator's records on a different schedule.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: It should be more specific in that there should be a task list for each position and not one list that covers multiple positions. Example: Companies with specialize positions should have a task list for each position. Auditors will apply a broad based task list to specialized positions and create findings stating that each position should be able to perform all task on the general list.

   Also, the Standard should clearly state that this is a one-time assessment for each system operator and their respecitive position. It should take into account prior work history, training, qualifications and certifications from previous employers when assessments are made.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

Comments: See comments on #9.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This has not been properly vetted through the industry. Furthermore, this is an administrative standard and medium to high risk should not apply unless the training program is grossly inadequate.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Should state "applicable SAT-related outcomes" rather than "SAT related outcomes". The current wording will create unnecessary work. For example, an Analysis may show that the simplicity and frequency of a task does not need to move beyond the Analysis phase. This can be an audit liability when taken literally.

   M.4 Should state "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection verification of the qualifications for each real-time System Operator and their assigned positions, as specified in R4.".

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The requirments for self-certification should be identified. Without reasonable guidelines, a Regional Entity will have free reign to set whatever self-reporting standards it deems fit. With the current wording, annual self-certification has the potential to become very stringent.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This part of the standard is not clean and simple. Plus, it's an administrative standard and should not carry moderate to high violation levels. Also, lack of documentation should be a low violation. High and Severe violations should be reserved for entities who do not have training programs, or their programs are not maintained with adequate staff.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

Comments: R1, R2 & R4's timeline should have an additional time, at least another year, added to allow for budget cycles, hiring & traininig trainers. Additional personel will be required in many cases and these positions will need to be budgeted before they can be filled. Once filled, then the work to develop a training program begins. Depending on the approval date, a company's budget cycle may be well underway and beyond the point of change and thus delay their ability to succeed within the current timelines.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: ***VERY IMPORTANT***Implementation of this Standard without a guiding document for a training program similar to what is provided by the Department of Energy or the U.S. Military who routinely apply SAT or Instructional System Design (ISD) processes leave too much open to the inerpretation of auditors.

VERY IMPORTANT: 4.2 needs to be re-worded so it is clear that the RC/BA/TO is not responsible for training personnel in other organizations to which it has delegated tasks. After 4.2, "delegates" is not mentioned in conjunction with RC/BA/TO as being responisble to implement this standard.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Dave Folk	
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☒ **RFC**	☒	5 — Electric Generators
☐ **SERC**	☒	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
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☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*
Doug Hohlbaugh	FirstEnergy	RFC	
Sam Ciccone	FirstEnergy	RFC	
Dan Dipasquale	FirstEnrgy	RFC	
John Reed	FirstEnergy	RFC	
John Martinez	FirstEnergy	RFC	
Jerry Sanicky	FirstEnergy	RFC	

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: FE believes it is appropriate to have this requirement reside within the PER-005 standard and that the requirement be removed from the proposed standards that are being developed within the Project 2006-03 work effort. It is our position that all requirements related to personnel training should reside within the PER suite of standards.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: We agree that there should be some assessment of the effectiveness related to knowledge and skills learned during training being transferred to work place performance. However, upon reviewing R4, the measures associated with R4, and the VSL aimed at R4, it is unclear what the standard's expectations are related to this requirement.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Many of the measures provide no additional information beyond the information contained in the requirement except to say "provide the evidence". In addition, where they do provide additional information, the measurement value is not contained in the requirement. As an example, measure M1.1. states that, "Analysis that results in a list of company-specific BES reliability-related tasks and measurable or observable criteria for desired performance for each task." However, there is nothing in R1 or the sub-requirements that states measurable or observable criteria for desired performance must be developed. All requirements should be clearly stated in the requirements section of the standard and the measures section should not impose new or additional requirements.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The compliance monitoring and reset period is a vague concept that may be of little or no value in the mandatory compliance regime. Under the mandatory compliance regime, non-compliance is followed by a mitigation plan that contains the date by which compliance will be achieved and thus reset the compliance clock. This reduces or eliminates the value of the monitoring and reset period.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The process for establishing VSLs is presently being vetted through the industry for the 83 FERC approved standards. We believe it is prudent to let that process take its course so that SDTs presently working on revised or new standards can reference the new format in establishing VSLs.

   The violation severity levels as written are interlaced making it difficult to determine the violation severity level that pertains to each requirement. The violation severity levels should be listed by requirement. In addition the following revisions to the wording are suggested:

   Item 2.2.2 should be revised to state, "The responsible entity has determined training required based on the mis-match between acceptable and actual performance capability but has not included this training in its current schedule."

   Item 2.2.3 should be revised to state, "The responsible entity annually provided at least 32 hours of training on emergency operations or system restoration but the training did not include the subject areas listed in Attachment B."

   Item 2.3.3 should be revised to state, "The responsible entity provided to its system operators at least, 32 hours of emergency operations or system restoration training,

annually, but not all its System Operators have completed or evidence shows all of its System Operators will not have completed the required annual training."

Item 2.4.1 should be revised from, "The responsible entity does not have a SAT program for its system operators" to "The responsible entity has not used the SAT process to develop its training program."

Item 2.4.2 states, "The responsible entity has not performed an assessment which includes identification of measurable or observable criteria for desired performance to each task for the determination of the training needs for two of its system operating position." Looking past the fact that there is no requirement to identify measurable and observable criteria for desired performance, the severity level as written appears to state that I cannot get a severe violation severity raking if I only have one operator position. This should be revised to state, "… training needs for all of its system operating positions."

Item 2.4.3 paragraph 2 should be revised to state, "The responsible entity has provided 32 hours of emergency operations and system restoration training but the training has not been provided annually."

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments: FERC 693 (par. 1359) directive to include the Generator Operator has not been addressed by this standard.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: FE has the following additional comments:

    1. This standard requires the use of the SAT process, yet it contains no requirement for trainers to be trained in this process. This train-the-trainer requirement is necessary to ensure an effective implementation process throughout the industry. This should be remedied prior to this standard becoming effective.

    2. In R3, the phrase "…at least 32 hours annually of emergency operations and system restoration training" is written incorrectly and does not coordinate with its measure, M3. We suggest changes to the phrase in both R3 and M3 to read "…at least 32 hours annually of emergency operations training which includes system restoration training".

    3. In R1, the last part of the statement should say "…System Operator positions." and not "…System Operators." This would then be consistent with the rest of the standard.

4. In Attachment A, Items #2 and #4 are duplicative. This should be corrected.

5. It is not clear how R4 would be acceptable from a compliance standpoint. The SDT should add verbiage to clarify this requirement. The measure for this requirement (M4) doesn't add any value.

6. Measures should not add requirements. We believe that M1.2 is dictating more requirements than R1 intends when it states "Design and development of training materials that result in learning objectives and content that is derived from results of training analysis". The SDT should remove this from the measures and re-evaluate the need for this statement in the standard.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☒ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☒	1 — Transmission Owners
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Contact Organization:

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Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: I agree that it is reasonable to annually assess the training needs for each operator position (R-2) in relationship to the defined company-specific reliability-related tasks (R-1.1).

   However, the assessment requirement (R-2.1) based on a mis-match between acceptable and actual performance capability seems ambigious and leaves the measurement (M-2) of this requirement subjective and open to interpretation. What is an acceptable means of preforming this assessment? What can we expect from a compliance audit on how they will assess each entity? An acceptable criteria (i.e., Auditors Guide) for evaluating this mis-match needs to be provided.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: I would like to see this requirement be removed from the System Restoration and Blackstart standards and to be placed only in the Personnel training standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The standard as written, does not define a time frame for the assessment (R-4). I feel that this assessment is not achievable and is unrealistic due to the time burden involved. Clarification needs to be given as to the time frame when this evaluation is to be given.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The risk factors associated with the training standards should be "Lower" risk factors. These training activities will be occurring outside of the "real-time" operating arena and therefore violations of these requirements cannot in and of themselves cause impacts as defined by "Medium" risk factors. An entity would be required to violate several core operating requirements prior to the violation of a training requirement having any material impact on a system. At that, the linkage of an event to a training activity would be extremely subjective.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: M 1.4 - What would be required documentation for training delivered by an outside vendor? Would certificates be sufficient? M-2 - see comment on number 1 above. M-4 - see comment on number 3 above.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: D1.2 - What is the compliance Monitoring Period? Should the Reset period be one month when these are apparently annual requirements?

   D1.3 - Why is data retention four years? What is the benefit of an additional year of records past the last compliance audit which is required every 3 years per D1.4?
   - Is the retention of "any data used in mitigation plans associated with this standard" intended to be an indefenite retention? This is not clear. Is the "mitigation plan" intended to be mitigation for the entity to get in compliance with the standard, or for the individual operator to achieve the desired performance level per the entity's training plan?

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: I do not feel that any VSL should be severe or high in relation to a training program.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: Overall,I am in support of the development of a training standard to ensure personnel responsible for the real time operation of the BES to meet minimum knowledge and competency levels. However, I would recommend that any training requirements noted in NERC Standards should be identified only in the System Personnel Training Standard.

    This standard should apply to System Operating Positions only - not by individual system operators.

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Name:		
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☐ **ERCOT**	☐	1 — Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

Group Name: Florida Reliability Coordinating Council

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Contact Organization: FRCC

Contact Segment: 10

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Ed Seddon	Orlando Utilitites Commission	FRCC	1
Jeff Gooding	Florida Power & Light Company	FRCC	1
Charles Wubbena	Seminole Electric Cooperative	FRCC	4
Alan Gale	City of Tallahassee	FRCC	5
Mike Locke	JEA	FRCC	3
Ed Devarona	Florida Power & Light Company	FRCC	1

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: FRCC agrees that it is reasonable to annually assess the training needs for each operator position (R-2) in relationship to the defined company-specific reliability-related tasks (R-1.1).

   However, the assessment requirement (R-2.1) based on a mis-match between acceptable and actual performance capability seems ambigious and leaves the measurement (M-2) of this requirement subjective and open to interpretation. What is an acceptable means of preforming this assessment? What can we expect from a compliance audit on how they will assess each entity? An acceptable criteria (i.e., Auditors Guide) for evaluating this mis-match needs to be provided. FRCC agrees it is reasonable for this assessment to include identification of training to preform new or revised tasks from the company-specific reliability related task list. (R-2.2)

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: FRCC recommends this requirement be removed from the System Restoration and Blackstart standard and be placed only in the Personnel training standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The standard as written, does not define a time frame for the assessment (R-4). The FRCC feels that this assessment is not achievable and is unrealistic due to the time burden involved. Clarification needs to be given as to the time frame when this evaluation is to be given.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The risk factors associated with the training standards should be "Lower" risk factors. These training activities will be occurring outside of the "real-time" operating arena and therefore violations of these requirements cannot in and of themselves cause impacts as defined by "Medium" risk factors. An entity would be required to violate several core operating requirements prior to the violation of a training requirement having any material impact on a system. At that, the linkage of an event to a training activity would be extremely subjective.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: M 1.4 - What would be required documentation for training delivered by an outside vendor? Would certificates be sufficient? M-2 - see comment on number 1 above. M-4 - see comment on number 3 above.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:
   D1.2 - What is the compliance Monitoring Period? Should the Reset period be one month when these are apparently annual requirements?

   D1.3 - Why is data retention four years? What is the benefit of an additional year of records past the last compliance audit which is required every 3 years per D1.4?
   - Is the retention of "any data used in mitigation plans associated with this standard" intended to be an indefenite retention? This is not clear. Is the "mitigation plan" intended to be mitigation for the entity to get in compliance with the standard, or for the individual operator to achieve the desired performance level per the entity's training plan?

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: FRCC does not feel that any VSL should be severe or high in relation to a training program.
   D2.4.3 - Grammatically incorect. Second paragraph should end " training has not BEEN provided annually."

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: Overall, FRCC is supportive of the development of a training standard to ensure personnel responsible for the real time operation of the BES to meet minimum knowledge and competency levels. However, the FRCC recommends that any training requirements noted in NERC Standards should be identified only in the System Personnel Training Standard.

    How is a "new" employee handled? If I hire an operator and he gets NERC Certified in November (or later) I feel I should not have to complete all 32 hours of emergency training.

    This standard should be by position only - not by system operators.

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Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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E-mail:	billyl@gplops.org	
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☒ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

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Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: I believe that the training of system operators needs to be assessed, but Garland Power & Light is a small utility that has a training staff of one personnel that has many other duties as well to perform. The requirement is completely out of scope for resaonability. This would place a huge budget burden on small utilities that are managed by City Councils.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: It should be contained in the System Restoration and Blackstart standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: See #1 above. It is too large of a burden on small utilities. The requirements should be modified for practicality and still accomplish the goal.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Do not agree with the annual time line in R2. Long Term planning should be defined.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: I think the Violation risk factor for training requirements should be lower than a medium.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Again, small utilities can not manage a large training program with unreal expectations for training requirements. This would be great if you had unlimited resources or was only in the training business and not having to manage real time operations at the same time on a daily basis.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: I do not agree with the requirements in the standard, so the Compliance Process can not be addressed until the requirements are agreed upon.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Same answer #7.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: It is an unreal expectation that a small utility will have the resources to comply with the requirements stated in R2 and R4.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: As stated in question #9 above, small utilities do not have unlimited resources to budget only to training. This standard would place an undue burden on training departments to meet compliance criteria that would result in additional staff needed that small entities can not meet.
    R4 -How are we supposed verify the capabilities of the each real time operator? How will someone with a NERC certification that is not working a real time desk position, (i.e. training, other administrative rolls, switching coordinator) be assessed?

How will operators be assessed annually under R2?
Why would any entity want to add to the task list when you can not meet the requirements already stated?
There are many items in the task list that are not currently done in ERCOT by Transmission and Generation Operators on a utility level, but rather done on the ERCOT regional level so how can one be assessed on that requirement.
I wouls see that entities will be excluding task from the list rather than adding them.
A systematic approach to training is the way to approach training needs, but this approach seems to be a bit to aggressive without consideration for the small utilities.
NERC should take the lead in developing training programs that can be administered be regional entities that are appropriate for the region.

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Comment Form — Standard PER-005 — System Personnel Training

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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☒ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☒	1 — Transmission Owners
	☐	2 — RTOs and ISOs
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
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	☐	7 — Large Electricity End Users
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	☐	10 — Regional Reliability Organizations and Regional Entities

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Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Please define how to constitute acceptable and actual performance cabability and clarify the requirement. How will industry identify "mismatch". Is this requalification of system operators. The requirement doesn't seem measurable and crisp to audit for compliance. This requirement has a "fill in the blank" characteristic.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The 32 hour emergency training requirement belongs in the Personnel Training Standard. Please provide the basis fot the 32 hour requirement.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: We agree with the principle. However, please specify how you propose to to execute and measure this requirement.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: It must be clear that no personal information or assessments that may be confidential are part of M2. The information should strictly be related to the System Operator's skills. Also see Q8 below regarding R1 and M1.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: D1.2, the reset period seems unrealistic and short. The assessment is due annually.

   D1.3 delete onsite. Also who is the Compliance Monitor intended to be.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Requiring a training program subject to following 5 Systematic Approach to Training (SAT) principles seems overly perscriptive and why would it be a severe violation severity level not to follow these or subset thereof. NPCC Participating members can accept 5 training principles but the entire SAT seems unnecessary. If NERC intends to adopt the SAT, in its entirety, it needs to clarify and educate the industry before incorporating it into a standard.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments: The lack of objectivity in these requirements may conflict with labor union contracts i.e. confidentiality issues of review.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: R1.1 should refer to Transmission Operator instead of Transmission Owner. The proposed standard is not applicable to the Transmission Owner.

Attachment B should have the same preamble as Attachment A.

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Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☒ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
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The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: We agree with the annual assessment of the training need. However, we feel the standard needs to have a requirement on the competency level (defined industry-wide or by individual responsible entities) in order to identify the mismatch between acceptable and actual performance capability.

   That said, this is not a requirement that can be developed easily. Having an industry-wide competency level lends itself to debates, possibly without an agreement, and given there is already a certification examination. Leaving it to be developed by the individual responsible entities would subject the requirement to a "fill-in-the-blank" category, which is to be eliminated.

   A simpler approach would be to require responsible entities to assess training needs on an annual basis, without specifying how, and develop an effective training program with an aim to enable operating personnel achieve the required skillset. In this case, the requirement will focus on the process (annually assessment) and the what (the training program), not the how (measuring the mismatch).

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: Training requirements should always be covered by one standard. This avoids duplication of requirements and lends clarity to the scope of the standard under consideration. On this basis, we feel that the 32 hours emergency training requirement should be covered in this standard since this standard deals with all aspects of training. Further, the standard on System Restoration and Blackstart has a narrower scope as compared to PER-005 - Restoration and Blackstart scenarios only - and may not cover all the emergency scenarios.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: The key attribute here is "assessment of the capabilities". As noted in our comments to Q1, above, while we do not disagree with developing a requirement for establishing the competency level for system personnel to perform the assigned tasks,

the determination of this competency level and assessment of the mismatch would be troublesome and likely not measurable.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: We do not agree with some of the requirements in the standard (see our comments under Q11) hence we have difficulties commenting on the time horizons. Given what's written, however, our general comment is that assigning long-term planning to all the requirements is inappropriate, if not over-simplistic. For example, the annual assessment of the training need and development of/revision to a training program, as the requirement implies, occurs once every 12 months. This is normally regarded as an operations planning time frame if violation of this requirement is to be mitigated.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Given what's written, but we do not agree with some of the requirements (see Q11, below).

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: Yes, given what's written, but we do not agree with some of the requirements (see Q11, below). In addition, we think M3 should be expanded to cover the sub-requirements in R3. One item of particular concern is an entity is assigned a Low violation if it is found that it did not add or remove topics from the Emergency Operations Topics. This is not covered in M3, which only covers the 32 hour training duration requirement.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: We have difficulties with the following elements:

   1. The entity "Compliance Enforcement Authority" is a new term and should be replaced with the equivalent Functional Model entity.

   2. The compliance elements should deal with assessing whether or not, or the extent to which, responsible entities meet the requirements according to the measures. To require a responsible entity to maintain records on whether it is following or followed any mitigation plan associated with the standard appears to be a follow-up process after the entity has been assessed non-compliant. This seems to be outside the scope of a standard. Similar comment on the requirement for the Compliance Monitor to retain any

data used in mitigation plans associated with this standard, and the Compliance Monitor is not on the applicability list.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:

   (1) 2.1.3 See our comment under Q6 that is related to this violation severity level.

   (2) We are unable to offer comments on the VSLs associated with not following or missing any steps in the SAT program. We not do see adopting and following a SAT approach to develop a training program should be a requirement. Please see our comments under Q11.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: We have a major difficulty with the standard as written. We are therefore unable to agree on the implementation plan.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: The IESO appreciates the opportunity to comment, and commends the drafting team for responding positively to our comments on the previous draft standard and SAR.

    However, we have a major difficulty with this standard:

    1. R1 require that responsible entities complete the five phases of a systematic approach to training (SAT), which includes analysis, design, development, implementation, and evaluation - ADDIE) to establish a new or modify an existing training program. We do not agree that this should be a requirement.

    The requirement should be for the responsible entity to develop an effective training program to help system operation personnel to acquire the competency to perform the applicable tasks pertaining to the RC, TOP and BA functions that the entity is responsible for or assigned. We neither endorse nor disagree that the SAT process is a good approach, but how the training program is arrived at (i.e. what approach it takes) is not important and should not be a standard.

The 2003 Blackout report emphasized a need to train system operators to perform all tasks assigned to their positions. This can be met by requiring responsible entities to develop programs that cover training on all the tasks assigned to the operators, within the scope of the RC, TOP and BA functions, provide the resource for delivering the training. To achieve this, let us reiterate our previous suggestions:

a. Developing a training program which lists the tasks (specifically for the RC, BA and TOP as listed in the Functional Model) to be performed and the competency level required to perform the tasks;
b. Delivering the training program;
c. Recording, tracking and assessing progress of the persons receiving training;
d. Planning, providing resource, reviewing and adjusting (as necessary) the training program annually.

(2) We realize that system operators may perform other tasks over and above those identified for the RC, BA and TOP functions. However, these other tasks are outside of the scope of the envisaged certification requirements and hence outside of the scope of this standard. The term "company-specific reliability related task" lends itself to interpretation that other reliability tasks (such as those performed by GOP, DP, etc.) must also be included in the training program. We suggest this term be revised, or more words be used to clearly stipulate that only the tasks assigned to the above 3 functions need to be included, depending on the structure and the registered function(s) of the organization.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Kathleen Goodman	
Organization:	ISO New England	
Telephone:	(413) 535-4111	
E-mail:	kgoodman@iso-ne.com	
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☒ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☒	2 — RTOs and ISOs
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Please define how to constitute acceptable and actual performance cabability and clarify the requirement. How will industry identify "mismatch". Is this requalification of system operators? The requirement doesn't seem measurable and crisp to audit for compliance.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The 32 hour emergency training requirement belongs in the personnel training standard. Please provide the basis for the 32 hour requirement. Is this in addition to the NERC Certification requirements? How does this Standard fit into the existing NERC Certification requirements?

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: We agree with this principle however please clarify how you propose to execute and measure this requirement.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: It must be clear that no personal information or assessments that may be confidential are part of M2. The information should strictly be related to the System Operator's skills. Also see number 8 below regarding R1 and M1.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: D1.2, the reset period seems unrealistic and short. The assessment is due annually.

   D1.3 delete "onsite." Also who is the Compliance Monitor intended to be.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Requiring a training program subject to following 5 Systematic Approach to Training (SAT) principles seems overly perscriptive and why would it be a severe violation severity level not to follow these or subset thereof. ISO-NE can accept 5 training principles but to require only SAT seems unnecessary. This goes against the principle pf telling the industry WHAT to do, not HOW to do it.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments: The lack of objectivity in these requirements may conflict with labor union contracts (i.e. confidentiality issues of performance reviews).

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: R1.1 should refer to Transmission Operator instead of Transmission Owner. The proposed standard is not applicable to the Transmission Owner.

Attachment B should have the same preamble as Attachment A.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☒ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
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Background Information

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: You are simply asking too much of a large segment of this industry-those utilities that have a small, or nonexistent, training staff. Your goals are lofty, but NERC is completely out of touch with reality if it believes that the huge requirements of this standard can be effectively managed by utlities such as mine that employ a training staff of one.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: It should be contained in the Continuing Education Program.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: See #1 above. It is simply too much for smaller entities to handle. Has anyone in the group that developed this standard polled the industry to see what kind of resources are available to support it? If not, then you have no idea of whether or not it is feasible.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: If I do not agree with the requirments in the first place, then I can hardly agree with any time line.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: See #4.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Again, it is an unreal expectation to believe that smaller utlities can manage what amounts to an entirley new massive program.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: see #4.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: see #4

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: If I started on this today, it would take me longer than that to create all these new requirements. In order to meet this requirements, I would have to drop all other responsibilities.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: To recap, the creaters of this standard have done a good job. My problem is not so much with the standard itself, as it is with the completely unreal expectation that the resources, money, and time exist to do all of this.
    Some further points:
    R.2- How are we supposed to accomplish this? Test each operator on each task anually? I spent 9 years in nuclear power operations and I did not get tested on each critical task the entire nine years. I was responsible for all critical tasks, but annually I was tested on a few randomly selected ones. That is a much better way to manage such a program.

From the generic task list for Transmission:

#5: Not performed by Transmisison System Operators, this is done by support staff
#18: Not performed by Transmisison System Operators in ERCOT
#27: Not performed by Transmisison System Operators
#45: Not performed by Transmisison System Operators in ERCOT, this is done by support staff
#61: What if your utility has no HVDC?
#67: In ERCOT, Transmission System Operators do not redispatch generation. This function is performed solely by the QSE. The only case where this would not hold true would be a blackstart.
#70, #71, #72, #73, #79, #81: Since ERCOT is a deregulated market none of these functions are performed by Transmisison System Operators at LCRA.

The standard mentions that a given organization is responsible for these generic tasks as well as any other self-identified ones. Use your common sense, if you give people the option of adding to their work load by adding elements to the list, basic human nature will lead people to not do so. Why would they want to create work for themsleves when this standard would already be making their jobs incredibley burdensome? Conversekly, if entities are allowed to drop some of the genric items off the list what you will see is individual utilities paring this last down to something manageable.

What we have here is a proposal to implement a standard without, in my opinion anyways, a thorough assesment of its impact. The basic idea is sound-a mandate for a systematic approach to training. The devil is in the details. I believe there is no concept of the time and resources that exist in this industry on the part of those who created this standard. You can mandate it, but it does not meant that those of us in the positions of responsibility will get the money/resources it would take to implement such a massive undertaking. The smaller utilities would need real help in making this happen. If NERC is bent on pushing this standard through then it should step up to the plate with regional training, templates, standardized forms, etc-all the things that will be needed to make this happen. This new standard would amount to an unfunded mandate making compliance a very difficult proposition for those of us at the end of the pointy stick. In fact, I would personally consider moving into some other area out of training in order to not be liable.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: It is unclear what "acceptable" is and what measurements can apply to it when it has not been defined. It is unclear whether this means for each job title or for each person that holds the system operator certificate. If it is for each job title (position), this is reasonable, however if it is each person, then it becomes overly cumbersome. If for each person, this is the responsibility of the registered entity to council and supervise its' operators. Or does it simpley mean that the System Operator position (tasks) in question has been reviewed and they meet the currect position responsibilities? How can this be measureable if there is no change in job tasks from year to year? Perhaps it should read "System Operator job task for each position shall be reviewed upon addition or removal of system operator job tasks".

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments:
   a) This requirement needs to be in "Personnel Performance, Training, and Qualifications" standard. In NERC's Reliability Standards Development Plan dated Nov 30, 2006, the Work Plan objective to support its Goal is to "Reorganize the standards more logically based on topic and remove redundancies". All NERC Training Requirements need to be within the Personnel Performance, Training, and Qualifications Standard's section.

   b) All required training that a NERC Standard directs any entity to do should be placed in its own NERC (training) Standard. The NERC Standard category "Personnel Performance, Training, and Qualifications" is established for this purpose. As stated in FERC Order 693, para. 1335, training requirements would not be in one "all inclusive standard". A better fit is to have many individual standards (that specify training requirements listed in Personnel Performance, Training, and Qualifications section of the NERC Standards) under the heading of "Personnel Performance, Training, and Qualifications". If a training requirement is imbedded in a non-"Personnel Performance, Training, and Qualifications" standard, it will lead to possible shortfalls from an entity.

   c) This requirement should be in the Personnel Performance, Training, and Qualifications Standard, because it applies to training not specifically related to System Restoration or Blackstart (e.g. loss of primary control center, energy emergencies, etc.).

   d) In R3, it is stated "… 32 hours annually of emergency AND system restoration training." Does this mean 32 hours of both or a total of 32 hours? Since system restoration is a subset of Emergency Opertions Topics (attachment B), then the SDT should delete system restoration from R3. Either way the SDT needs to state what the proposed requirement will be.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:
   a) It is unclear whether this means for each job title or for each person that holds the system operator certificate. If it is for each job title (position), this is reasonable, however if it is each person, then it becomes overly cumbersome. Routine tasks are currently monitored by the System Operator's Supervisor as part of the Supervisor's on-going evaluation of the System Operator's job performance. Job performance evaluation is a normal part of supervision and is utilized to determine compensation levels, retain quality personnel and administer the promotion process. Requiring a formal test or evaluation of tasks performed on a routine basis will trivialize the assessment process and encourage rubber-stamp approval to sign off on each task. System Operators should only be required to formally demonstate competance in performing non-routine tasks which are performed on an infrequent basis. Or does it simpley mean that the System Operator position (tasks) in question has been reviewed and they meet the currect position responsibilities?

   b) As a measurable requirement, this becomes too cumbersome (if for each system operator). As a business practice, it is good, but some of the tasks (i.e. communication with the RC) are performed regularly and to have to document each task for each operator would be overly burdensome.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:
   a) Entities have established training programs per Regulatory Approved Standards. Proposed Effective Date, 5.1 is the only parlell, carry over requirement from a Regulatory Approved Standard (PER-002-0, R4) to this proposed standard. This time frame is workable.

   b) Proposed Effective Date, 5.2 is unclear (see comments of 2.a, above), so an effective date can not be proposed yet.

   c) Proposed Effective Date, 5.3 for the proposed SAR contains over 370 tasks for operators and the time line is too aggressive. Registered Entities will need to be trained in the Systematic Approach to Training process, set up their own processes, convert established training to the SAT process, create new training and start to give training to System Operators. Budgets will need to be forecasted, personnel will need to be tasked with the training process (most companies have a small training department), this will take an extream amount of time and cost are unknown at this time.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

☒ No

Comments: Since Violation Severity Levels have not been vetted through the electrical industry, levels of severity can not be applied to the proposed standard.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: M1.2, Unclear what the difference is between "design" and "development", and these are in fact lumped into one measure even though they are considered 2 separate steps for the SAT process.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:
a) It is unclear what the one month period is meant to be in Compliance 1.2. If it is meant to mean that the requirements need to be met monthly, then the requirements are too in-depth to be met on a monthly basis. A full evaluation of each operator on a monthly basis in particular would be impractical. R3 already mentions it is an annual requirement, and this time period seems reasonable for all of the requirements.

b) Data Retention, 1.3, Do not understand the 4 year retention period, since Registered Entities (RC, TO, BA) will be audited every three years..

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:
a) In 2.1.3, under VSL, it is possible that the list of Emergency Operations Topics exactly fits an entity, and such entity should not be penalized for that. In 2.2.3, this implies that ALL of the subject areas must be met annually. If this is not the intent, it should be clarified. If this is the intent, this appears to be too demanding for each operator to meet all 42 subject areas in 32 hours.

b) VSL's need to be vetted through the electric industry or drop them all together. Since a training violation does happen during realtime, the VSL should be low.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: a) Entities have established training programs per Regulatory Approved Standards. Proposed Effective Date, 5.1 is the only parlell, carry over requirement from a Regulatory Approved Standard (PER-002-0, R4) to this proposed standard. This time frame is workable.

b) Proposed Effective Date, 5.2 is unclear (see comments of 2.a, above), so an effective date can not be proposed yet.

c) Proposed Effective Date, 5.3 for the proposed SAR contains over 370 tasks for operators and the time line is too aggressive. Registered Entities will need to be trained in the Systematic Approach to Training process, set up their own processes, convert established training to the SAT process, create new training and start to give training to System Operators. Budgets will need to be forecasted, personnel will need to be tasked with the training process (most companies have a small training department), this will take an extream amount of time and cost are unknown at this time.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:
a) In NERC's Reliability Standards Development Plan dated Nov 30, 2006 (pg 3 of 21), (pertaining to FERC Order 672) states "the Commission states that a proposed reliability standard must be designed to achieve a specific reliability goal and be clear and unambiguous regarding what is required and WHO is required to comply". The STD will need to rewrite Applicability 4.2, (use of the words "and their delegates") do to the ambiguous personnel requiring training other than certified system operators.

b) R4.2 states the standard applies to System Operator positions listed under R4.1 and "their delegates who can directly, or through communications, impact reliability by producing a real-time response from the Bulk Electric Systyem". In NERC's Personnel Certification and Governance Committee (PCGC) Charter (approved May 2, 2007), Section 2, 1.a. includes that the PCGC sets the "requirements for personnel certification, maintaining certification, and recertification". The PER-005-1 SDT does not have the authority to require non NERC Certified personnel to be trained under a NERC Standard. The PCGC establishes who must be NERC Certified.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: Attachment A:
Concerning General Control Center Operations Tasks,
#22 (Monitor real-time market prices) should be removed, reliability is not based on economics.
#58 (evaluate, test, and/or confirm the accuracy of reliability assessment tools) should be removed, this is not an operator task.

Concerning Generation Tasks,
#14 (publish next-day market results) it is redundant with #29.
#48 (suspend automatic generation control as required) should be removed, it is part of #47.
#58 (operate power facilities in compliance with environmental standards) should be removed, it is not a part of reliability.

Attachment B:

A.6, needs to be split into two topics, 1) Geomagnetic Disturbances on system operations and 2) Weather impacts on system conditions.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Leo St. Hilaire	
Organization:	Manitoba Hydro	
Telephone:	204-487-5326	
E-mail:	lasthilaire@hydro.mb.ca	
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
☒ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☐ **SERC**	☒	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: Not clear on what system operator position means. In theory I agree but from a practical purpose this is not an easy task, especially for non-routine or emergency tasks without the aid of a simulator. While reference is made to the 737 pilot, simulators for the aircraft industry are far more developed than those for electrical systems. Walking through restoration plans and emergency procedures is one thing but it is quite another thing to put into practice. Is it being suggested that a comparison of acceptable to actual perfomance be made from the task on the BES task list.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: Should be part of the system personnel training standard. Anything related to training should be found in these standards.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: In theory I agree but from a practical purpose this is not easy. My real concern is who would be doing the evaluation. Besides being a burden on many utilities, as some utilities will maintain a a narrow list of BES tasks so that they could comply. I am unsure whether or not each utility would treat the evaluation consistently. In some companies, supervisors work along side the system operators and may just give the evaluation a cursory effort. This would do nothing to improve training.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Do not understand what this means.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

☒ Yes

☒ No

Comments: It is hard to believe that we are still mixing risk with importance. Yes training is an important component but it is a stretch to say that missing some item or document is going to place the system at risk.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: On quick review it looks like additonal requirements are being placed in the measures. The measures are complex and may not be understood.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Violation Security Levels are too complex to follow.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Violation Security Levels are too complex to follow.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☒ No

Comments: I think the plan is okay but if it has a medium risk factor then is that being understated and should we not be starting immediately.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☒ Yes

☐ No

Comments: There may be issues with some unions and its agreements.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: I still have a concern with whether or not this would be fairly applied by all utilities. Most utilities will try and keep a minimum set of tasks and the assessment process will be treated inconsistently across the utilies.. This has been a better attempt

at providing the miniimum tasks for each type of system operator but again, there will be no way the NERC or an audit team will be able to determine if the task should be there or not. Some way of tying the metrics being developed by the TADS might be away for determining training needs.

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Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
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	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Midwest ISO Stakeholders

Lead Contact: Jason L. Marshall

Contact Organization: Midwest ISO

Contact Segment: 2

Contact Telephone: 317-249-5494

Contact E-mail: jmarshall@midwestiso.org

Additional Member Name	Additional Member Organization	Region*	Segment*
Jim Cyrulewski	JDRJC Associates	RFC	8
Jim Eckels	FirstEnergy	RFC	1
Joseph DePoorter	MGE	MRO	3
Joe Knight	GRE	MRO	1

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

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The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: We agree that it should be a requirement to annually assess and update a training plan for each system operator position and design training around these assessments. However, the choice of words is poor and we can't support a requirement that implies it is acceptable for a System Operator to fill a position in which he does not meet an acceptable performance level.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: We don't think it matters which standard as long as it is in only one. It should be removed from the standard that is further behind in the process to minimize any schedule impacts. In relation to this annual training requirement, we recommend striking the second paragraph under section 2.4.3 of the Severe violation level. The first paragraph should cover all situations since 32 hours of training were provided or they weren't. If the 32 hours have not been met, the annual requirement has not been met.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Each operator should have an annual plan that includes a combination of training based on job tasks, simulation, and classroom knowledge-based training. There may be hundreds of tasks in an entities JTA. It is unnecessary and administratively burdensome to require an assessment each year against each task.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: As a general rule, we do not agree to any assignments of time horizons because time horizons were never vetted through the industry. The definitions also are not posted on the NERC web site in a prominent location. There were no time horizons assigned for R1 and R2 in PER-004-2.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: As a general rule, we do not agree with the assignment of any Violation Risk Factors to any requirements since the Violation Risk Factor definitions have not been vetted through the industry. One could make a case that the lack of a training program could be a medium risk violation, however there should be no medium or high risk requirements in an administrative standard. We appear to be confusing importance with the probability of cascading.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Measure 1 is confusing due to the sub-measures. Is this trying to say the training program shall have these four critieria? If so, it needs to be worded better. For example, we suggest simply replacing M1.1 with:

   A list of company specific BES reliability-related tasks with measurable criteria for each task.

   This is much simply and clearer.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: We have the following issues and concerns:

   1. Doesn't the Compliance Monitoring Period and Reset of one-month make the annual training requirement ineffective? Since it is reset every month, can you ever really measure if 32 hours have provided? It seems that it should not be reset each month.

   2. What is the justification for retaining documentation more than 3 years. Three years is generally the longest a standard requires for data retention unless there is a violation. There should be strong justification for this. We can't fathom what it is.

   3. Section 1.4 should be completely removed. It is written in a way that would require the regional entity to include this standard in their annual Compliance Monitoring and Enforcement Program every year and dictates to the region how compliance will be monitored. Isn't this up to the region? It also duplicates the requirement for a compliance audit every three years. It does not need to be repeated here.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

Comments: In general, we do not support the application of any violation severity levels because the VSL guideline has not been vetted through the industry.

We do have the following specific issues and concerns as well.

1. The VSLs try to cover so many scenarios that they are confusing. We had enough trouble understanding them that we are concerned we have not identified every specific issue with them.

2. In the Moderate Violation Severity Level, section 2.2.2 creates a de-facto requirement on the training schedule because the training based on the mis-match in performance is required to be in the current schedule. What if a responible entity's schedule is updated every quarter and only goes out 3-6 months? They could still train on this in months 7-12 but this compliance element would find them in violation because it was not in their "current schedule".

3. We do not agree that a lack of documentation should be considered a high violation as described in section 2.3.1 of the High VSL. Lack of documentation should be a lower violation.

4. Sections 2.3.1.1, 2.4.1.1 and 2.2.1 duplicate one another but are in different VSL.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: If the standard were simplified, it could be phased in more quickly.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: The scope of the Certifying System Operators SAR indicates that they will determine who needs to be certified. Yet, this standard in section 4.2 of Applicability section specifies who should be certified. This should be coordinated with the CSO SDT.

Requirement R1 in PER-004-2 will be redundant with standards created by the CSO SDT. We recommend eliminating it. Requirement 2 is also poorly defined and not measurable. How does one place particular attention on SOLs and IROLs? This a relative statement that leaves the requirement open to significant future challenges during enforcement.

The standard appears to have only 4 requirements, yet is 27 pages long. It is too complex. All registered entities should have a training program. It does not have to be a SAT program.

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Group Comments (Complete this page if comments are from a group.)

Group Name: Midwest Reliability Organization

Lead Contact: Robert Coish

Contact Organization: Manitoba Hydro

Contact Segment: 10

Contact Telephone: 204-487-5479

Contact E-mail: rgcoish@hydro.mb.ca

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Terry Bilke	MISO	MRO	10
Carol Gerou	MP	MRO	10
Jim Haigh	WAPA	MRO	10
Ken Goldsmith	ALTW	MRO	10
Tom Mielnik	MEC	MRO	10
Pam Oreschnick	XCEL	MRO	10
Dave Rudolph	BEPC	MRO	10
Eric Ruskamp	LES	MRO	10
Michael Brytowski	MRO	MRO	10
Joe Knight	GRE	MRO	10

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: There is a potential ambiguity that "each system operator position" could be interpreted as meaning "each person who performs each operator position". This is because of the use of the words "actual performance capability" which seems to refer to a person not a position. The MRO assumes what is meant is each position not each person. Please confirm. Perhaps wording could be clarified by inserting "(not person)" after the word "position". Suggest replacing "acceptable and actual performance capability" in R2 with "required and existing performance capability". The MRO agrees with R2 in concept but in practice this is not an easy task, especially for non-routine or emergency tasks which may be very difficult to simulate in training. While reference is made to the 737 pilot, simulators for the aircraft industry are far more developed than those for electrical systems. Walking through restoration plans and emergency procedures is one thing but it is quite another thing to in practice.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: Should be part of the system personnel training standard. Anything related to training should be found in these standards. Might be helpful to have a reference in the blackstart standard like "see personnel training standard for specific training requirements".

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: In R4 it isn't clear how often the Operator's capabilities must be assessed. There is a mismatch between Question 3 and R4. Question 3 uses the words "perform an assessment" whereas R4 uses the word "varify". An assessment is an estimate whereas to varify is to actually test. Perhaps R4 should use "assess" rather than "varify". In theory MRO agrees with R4 but from a practical point of view this is significant overkill. MRO Operators are already required obtain NERC certification. There is also the NERC Reliability Readiness Evaluation and Improvement Program. In addition, compliance to many other real time standards test the capabilities of the positions every day. How can the standard ensure that the assessment is being done consistently from company to company depending on who actually does the assessment and how complete or accurate each companie's specific BES task list is? For example, some utilities may maintain a

narrow list of BES tasks so that they could more easily comply. Would each utility treat the evaluation consistently? In some companies, supervisors work along side the system operators and may just give the evaluation a cursory effort. This would do nothing to improve training. Do all tasks have to be assessed annually? Wording seems to be flawed in that every operator has to be varified on every task before they can operate. This does not seem to recognize that operators require actual operating experience to aquire capability in all tasks. In general R4 adds an excessive and and burdensome level of bureaucracy.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: There is varied opinion on this. Perhaps the majority opinion is: It is hard to believe that we are still mixing risk with importance. Yes training is an important component but it is a stretch to say that missing some item or document is going to place the system at immediate risk. MRO suggest these be assigned as LOW but does agree that training is important. Others agree with assigning Medium.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: On quick review it looks like additonal requirements are being placed in the measures. For example, M1.1, seems to add an additional requirement of having measurable or observable criteria for desired performance for each task which is not stated in R1. The measures are complex and may not be understood. For example, in M4, it is not clear how "varification of the capabilities for each real-time operator" can actually be achieved and then varified to an auditor. In may also be inpractical to varify capability to perform some tasks if the individual operator has never actually been in a situation to demonstrate capability - follow the correct procedures to initiate loadshed in an emergency, for example.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments: The term Compliance Enforcement Authority (CEA) needs to be defined as it seems this is a previously undefined entity. Why not just say Regional Entity?

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Too complex. Don't need to list five phases again and again

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: If there is really a MEDIUM risk to the system perhaps the implementation plan should be accelerated. On the other hand, the implementation schedule may be overly aggressive if significant modifications to the Job Tasks are required.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments: (It seems the last sentence of this question is incorrectly phrased. Shouldn't "not" be replaced with "yes"?) There may be issues with existing union agreements.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: Please explain how the performance reset period of one month would work when the training program is being assessed annually per R2.

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Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	James Castle	
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☒ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☒	2 — RTOs and ISOs
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Monitoring the mismatch between acceptable and actual performance is a continual process. If there is a mismatch in the expectation and performance of reliability-based tasks, such mismatches are addressed immediately based on reliability requirements. Failure to do so is to risk non-compliance with reliability standards.

   To mandate an annual performance evaluations solely for the purposes of training, when continual reliability-based performance evaluations must be conducted to maintain compliance with operational standards, would be redundant.

   R2 should be deleted as unnecessary, given R1 and the compliance requirements with all other NERC standards. R1 addresses training for existing and "new or revised tasks"

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: This requirement that has no basis in a systematic approach to training, it should be removed from both locations. Thirty two hours is an indefensible, arbitrary, and capricious number.

   Please explain the justification for selecting 32 hours rather than 64, or 16?

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Orientation training is provided in a systematic approach to assume the task. Reinforcement training of the key reliability tasks is an ongoing aspect of a systematic approach to training. Addressing gaps between expectations and actual performance is driven by reliability requirements, not training program structure.

   Annual testing of all staff, on all possible tasks, is a waste of training effort and operator time.

   R4 should be deleted as unnecessary, given R1 and the compliance requirements with all other NERC standards.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Medium is an excessively high risk factor.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: M4 is unmeasureable. Replace the wording "verification of the capabilities" with "training records".

   R4 is not measurable. Please replace the following:

   Each Reliability Coordinator, Balancing Authority and Transmission Operator shall maintain training records of each of its real-time System Operators. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall maintain records of training programs provided to address the tasks on its list of company-specific BES reliability-related tasks.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: There is no requirement that requires data retention. There should be. See the proposed rewording of R4 above.

   Mitigation plans are addressed nowhere in the standard except in data retention. It is an undefined term.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:
   The risk factor should be LOW for R2. There is no risk to reliability if the mismatch does not result in reliability impacts in real-time operation. Real time reliability standards are

addressed in other documents. If there are tasks that fall below expectations that do not effect system reliability as measured by NERC standards, then their impact on reliability is low.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: R3 is in effect now under PER-004. There is no need for a phase in. On the other hand R3 has no place in a systematic approach to training and should be deleted.

If, and only if, R1, R2, R4, Appendix A and Appendix B are rewritten along the lines suggested in this comment form, the effective dates would be viable.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:

Requirement R1.2 should be deleted in its entirety. It mandates through "shall" that "all" the tasks in Attachment A be included in the company specific task list. Attachment A includes meaningless, redundant and poorly worded task definitions. If NERC wishes to create a separate document to aid entities in developing a company-list, that would be OK. But Attachment A, as written, is worthless and misleading definitions of tasks.

The Attachment A has no place in a standards document unless each and every item on those lists is mandatory.

Both Attachments A should be deleted or completely reworded. As written, it will never stand up in court as valid task definitions.

Here are examples of poorly worded tasks from the

NERC Generic Task Lists: Emergency Operations,

which I will be mandated to include in my company specific task list

Consider items 1-10 on that list.

1 Request emergency energy upon loss of a resource
2 Respond to capacity deficiency
3 Respond to loss of energy resources within allowable regional or pool timeframe

4 Prepare for a capacity emergency by bringing on all available generation
5 Prepare for a capacity emergency by postponing equipment maintenance
6 Prepare for a capacity emergency by scheduling emergency energy purchases
7 Prepare for a capacity emergency by reducing load
8 Prepare for a capacity emergency by initiating voltage reductions
9 Prepare for a capacity emergency by requesting emergency assistance from other systems
10 Schedule available emergency assistance with as much advance notice as possible given a capacity emergency

The true tasks in these items have nothing to do with the causal event. Cutting out the phrase about "capacity emergency" will clarify those task statements 3-10 exceedingly.

Cutting out the causal trigger for action, i.e. "Capacity deficiency", the measurable task #2 becomes "Respond to". Please provide an example of how one measures competency for the task "Respond to".

In items 4-8, the competency task has nothing to do with the trigger to initiate the task. Dropping "Prepare for a capacity emergency by….", is not a task definition. "Bringing on all generation", "postponing equipment maintenance", "scheduling emergency energy purchases", reducing load, initiating voltage reductions" (which is really a subtask of reducing load), "requesting emergency assistance from other systems", can be executed to resolve any number of issues besides capacity emergencies. The same tasks can apply to (1) preparing for and (2) resolving - all the subsets of SOL and IROLs.

How is the task "request emergency energy" in item 1 different from "scheduling emergency energy" in item 6, or "schedule available emergency assistance" in item 10"? Please explain.

The same exercise can be applied to items 15-24 on that list.

15 - Manually shed load to alleviate system emergency conditions
16 - Following the activation of automatic load shedding schemes, restore system load as appropriate for current system conditions and in coordination with adjacent systems
17 - Following the activation of automatic load shedding schemes, shed additional load manually if there is insufficient generation to support the connected load
18 - Following the activation of automatic load shedding schemes, monitor system voltage levels to ensure high voltage conditions do not develop
19 - Following the activation of automatic load shedding schemes, monitor system frequency to ensure high frequency conditions do not develop
20 - Following the activation of automatic load shedding schemes, monitor the performance of any automatic load restoration relays
21 - Following the activation of automatic load shedding schemes, resynchronize transmission at preplanned locations if possible
22 - Following the activation of automatic load shedding schemes, disable automatic under frequency relays if system conditions warrant
23 - Direct distribution providers to shed load when required for system reliability
24 - Use manual load shedding to prevent imminent separation from the Interconnection due to transmission overloads or to prevent voltage collapse

"Following the activation of automatic load shedding schemes" has no place in an outcome oriented, measurable task definition. It makes no difference to the operators' task how the load was shed.

Is the manual load shed task in 15 any different from the manual load shed task in 24? Are transmission overloads and voltage collapse in task 24 not included in task 15 "emergency conditions"? Please explain.

Does restoring system load task in 16 have any connection to how the load was lost? Is restoring load lost by UFLS, different from restoring load for manual load shed, or load trip, or restoration? Please explain.

Do you only monitor voltage levels following a UFLS event? Do I need different tasks to monitor voltage for load pick-up, load drop-off, line switching, line tripping, generation tripping, capacitor switching, reactor switching, phase shifter operations, HVDC operations, and interchange schedule changes? For each of these tasks, will I need a procedure for the auditors to verify? Please explain.

Do we only resynchronize transmission at pre-planned locations after UFLS events? Do I need to define different tasks for resynchronize transmission at pre-planned locations after a maintenance separation, during a system restoration, etc.? Please explain

Attachment B is severely flawed and redundant

The list in Attachment B has no place in a standards document unless each and every item on those lists is mandatory.

Attachment B should be deleted or seriously reworded. It will never stand up in court.

A1) "Emergency Drills and Responses" will capture:
- All of section B "Operating Policies relative to Emergency Operations"
- D4) responding to imminent voltage collapse
- D5) SOL: and IROL
- D6) DC operations during system emergencies

All of section B, D4, D5 and D6 should be removed in this standard that addresses a systematic approach.

D8 & D9. There is no distinction between "congestion management" and "line loading procedures" Remove D8 as redundant in this standard that addresses a systematic approach.

What is the difference between "congestion management" and "line loading procedures"? Please explain.

D11: Assuming that "tie line operations" means CPS control state that. If you intend it to mean another form of line loading control, delete it.

If you mean these to be different items, please clarify.

A5 & D2; There is no distinction between A5 and D2. Remove D2.
- A5: System protection
- D2: Special protections systems

What are "special protections systems" if not an instance of "system protection"? Please explain.

A4 & D3: There is no distinction between A4 and D3. Remove D3

A4: operations during unstudied conditions
d3: special operating guides

What is if the function of "special operating guides" if not to address "operations during unstudied conditions"? Please explain.

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Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☒ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☒	1 — Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

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Additional Member Name	Additional Member Organization	Region*	Segment*

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Background Information

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The caveat here is that before the assessment takes place, the requirements of each specific operator need to be developed. This process commences with the job tasks for each position being identified and the standards being developed from the task lists. It is difficult to determine the mis-match between acceptable and actual performance when the standard does not exist. The only standards that we currently have are that the operators must complete their NERC certification, and each operator is required to obtain 32 EOP hours of annaul training and obtain up to 200 hours of CEH to maintain their certification. Once we have completed the initial qualification of all the system operators, it would make more sense to tie the assessment to NERC recertification so that the assessment is done every three years.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The 32 hour requirement is not currently included in Project 2006-03. This information should be included in the training document. The System Restoration and Blackstart standard should reference the training document when talking about frequency of training and content, that way the training document would contain all pertinent training data including frequency of testing and testing requirements.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: This assessment should be part of the initial qualification effort, before the individual fills the position of system operator. The assessment should then take place every three years in conjunction with NERC re-certification. An annual assessment of each assigned task would be administratively arduous.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

Comments: The annual assessment is scheduled to begin before the baseline criteria for the evaluation is developed. It would be more beneficial to develop the standards upon which the evaluation will be based first so that the operators know what is expected from them.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Compliance monitoring period and reset lists the performance reset period for all requirements at one month, which would make the annual training requirements ineffective.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Since the training program with not be completed until the end of the three year period, assessments of personnel could not begin until after the completion of this development.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: We need clarification in A.4.2 as to whom this standard is applicable and who will be the initially qualified personnel to sign off operators.

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Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☐	1 — Transmission Owners
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	☒	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: NPCC Regional Standards Committee RSC

Lead Contact: Guy V. Zito

Contact Organization: Northeast Power Coordinating Council

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*
Ralph Rufrano	New York Power Authority	NPCC	1
Murale Gopinathan	Northeast Utilities	NPCC	1
Edwin Thompson	Con Edison	NPCC	1
Randy MacDonald	New Brunswick System Operator	NPCC	2
Mike Ranalli	National GridUS	NPCC	1
Roger Champagne	HydroQuebec TransEnergie	NPCC	1
Ron Falsetti	The IESO, Ontario	NPCC	2
Brian Gooder	Ontario Power Generation	NPCC	3
David Kiguel	Hydro One Networks	NPCC	1
Kathleen Goodman	ISO-New England	NPCC	2
John Bonner	Entergy Nuclear	NPCC	3
Don Nelson	MA Dept. of Public Utilities	NPCC	9
Al Adamson	New York State Reliability Council	NPCC	10
Reza Rizvi	NPCC	NPCC	10
Guy Zito	NPCC	NPCC	10

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Please define how to constitute acceptable and actual performance cabability and clarify the requirement. How will industry identify "mismatch". Is this requalification of system operators. The requirement doesn't seem measurable and crisp to audit for compliance. This requirement has a "fill in the blank" characteristic.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The 32 hour emergency training requirement belongs in the personnel training standard. Please provide the basis for the 32 hour requirement.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: We agree with this principle however please clarify how you propose to execute and measure this requirement.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: It must be clear that no personal information or assessments that may be confidential are part of M2. The information should strictly be related to the System Operator's skills. Also see number 8 below regarding R1 and M1.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: D1.2, the reset period seems unrealistic and short. The assessment is due annually.

   D1.3 delete onsite. Also who is the Compliance Monitor intended to be.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Requiring a training program subject to following 5 Systematic Approach to Training (SAT) principles seems overly perscriptive and why would it be a severe violation severity level not to follow these or subset thereof. NPCC Participating members can accept 5 training principles but the entire SAT seems unnecessary. If NERC intends to adopt the SAT, in its entirety, it needs to clarify and educate the industry before incorporating it into a standard.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments: The lack of objectivity in these requirements may conflict with labor union contracts. ie confidentiality issues of performance reviews.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: R1.1 should refer to Transmission Operator instead of Transmission Owner. The proposed standard is not applicable to the Transmission Owner.

Attachment B should have the same preamble as Attachment A.

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Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
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	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Ohio Valley Electric Corporation

Lead Contact: George Brady

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Contact Segment: 1

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Additional Member Name	Additional Member Organization	Region*	Segment*
Scott Cunningham	Ohio Valley Electric Corporation	RFC	1
Robert Mattey	Ohio Valley Electric Corporation	RFC	1

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: How can the training needs of a position be determined based on performance capability of that position? A position has infinite capability while an individual does not have infinite capability. The requirement be revised to determine mis-match of acceptable and actual performance and leave the word capability out of the requirement.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The training requirements for system operators should all be in the same standard, namely the System Personnel Training Standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This requirement is not necessary for several reasons. The ability to only perform individual tasks does not give a good indication of an operator's performance to manage and execute reliable operation of the Bulk Electric System during critical times when multiple tasks must be performed in rapid succession…working under pressure. The performance of an operator in a pressure situation would provide a better measure of an operator's performance rather than assessing capabilities to execute individual tasks. With only assessing individual tasks, the big picture of an operator's performance to reliably operate the Bulk Electric System is not adequately determined.

   Also, the performance of individual system operators is already evaluated through a performance review process and training evaluations are a part of that process. In order to demonstrate compliance with this requirement, would these performance reviews need to be made availabe to compliance auditors? Allowing auditors to view the performance reviews would seem to violate privacy and confidentiality laws and would necessitate the involvement of the human resources department in the compliance process. If the human resources department were not involved in the process then a separate process would need to be duplicated in a "sanitized" manner for inspection by the compliance auditors. This duplication would be redundant and inefficient.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The Risk Factor for each requirement should be low. Each of the requirements appear to be more administrative in nature and do not warrant a Medium risk factor as is currently assigned.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The M1 sub-measures are written more like requirements than measures. The submeasures should be deleted. Revise M1 to read, "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evdience of a SAT developed BES System Operator training program as stated in R1." This wording clearly measures all that is stated in requirement R1.

   In M2 it is unclear why the word "position" was included.

   For M3, delete the words "or system restoration training." Sytem restoration is considered a part of emergency operations.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: In Section D, 1.4 the annual self-certification submittal should not be included in the standard but left to NERC's discretion to either include or exclude monitoring in the annual compliance and enforcement program. The impact on the system from this standard is minimal if it is not monitored for compliance on a yearly basis.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Generally, the whole violation severity level section is far too cumbersome and verbose to understand and implement. Specifically, for Section 2.1.3 what if the entity did not find it necessary to add or remove any topics from the list? Why is that a violation? The section seems to indicate that the list has to have items constantly

removed or added to have no violation occur. For section 2.2.2 what is meant by the addition of the word "capability?" For section 2.2.3, if the 32 hours of training is not included in Attachment B then either Attachment B needs revised or deleted or the continuing education hours program also used to identify emergency operations courses needs revised. Suggest remove 2.2.3 entirely or remove the words, "or sytem restoration", and "but did not include training in subject areas listed in Attachment B." Section 2.3, the bulleted items seem to read as requirements rather than as measures. Section 2.3.2.1, again, what is meant by the addtion of the word "capability?" Section 2.3.3.1, this section reads as a requirement rather than as a measure.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The implementation plan should be simplified to allow for clearer understanding and easier tracking. Suggest that R3 become effective immediately upon regulatory approval since the 32 hours of annual emergency operations training is currently required in PER-002, R4. Suggest that R2 become effective January 1 in the first year following regulatory approval because an effective date that would allow for less than a full calendar year of implementation does not give an entity time to thoroughly assess annually the training needs of each System Operator position. Suggest that R1 and R4 become effective January 1 the second year following regulatory approval. The suggested times balance the timely implementation of the standard to maintain and enhance reliability, while allowing entities ample time to achieve compliance with the requirements, and is a simpler and more straight forward implementation plan that is easier to understand and track.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: The statement in Applicability Section 4.2 is too broad. It could be interpreted to include switchmen performing switching because switchmen can "impact reliability by producing a real-time response form the Bulk Electric System." This interpretation will not achieve industry consensus for the standard. The statement should be revised to repeat requirements R2 and R2.1 of PER-002 which states that "Each Transmission Operator and Balancing Authority shall have a training program for all operating personnel that are in: Positions that have the primary responsibility, either directly or through communications with others, for the real-time operation of the interconnected Bulk Electric System." This statement has the correct narrow focus, is easily understood, and is currently implemented by the entities.

    It is confusing in R2 why the word "position" was used rather than the word "person" and why was the word "capability" used at the end of the sentence. As currently worded, it is not clear what R2 is trying to require. The requirement seems to be asking an entity to "determine mismatch between acceptable and actual performance capability

for a position." What does that mean? The implementation of that interpretation does not seem feasible for the "capability of a position." It would seem the intent should be to determine the mismatch between acceptable and actual performance for an individual operator which R4 of the standard basically states. Suggest deleting R2, R2.1 and R2.2 and adding specificity to R4 described below.

R4 does not indicate how often an entity should verify capabilites of its Sytem Operators. Do entities only need to verifty capability of an Operator one time for each task? What if the task is rarely performed, how often should verification take place? What if the task is performed daily, how often should verification take place? The lack of a specified frequency to verify capability creates a requirement that provides no improvement to the reliability of the Bulk Electric System.

In R3 delete "and system restoration training" because this type of training would be considered emergency operations already. Delete R3.1 and Attachment B because the added specificity will not improve the type or scope of emergency training. Delete R3.1.1 because by just having a list will not improve emergency training or improve the reliability of the Bulk Electric System.

This proposed standard and several other standards appear to be an overreaction to the August 14 blackout. It seems to fall back to the specious argument that is if something happens, someone must have been responsible for the problem . Why are we unable to place the blame on the system for the problem, even if the system was the problem?

There has been no assessment or evaluation of the effectiveness existing training programs required by PER-002, R3 that has been in affect for over two years. Why create a standard to mandate a new training program when no assessment has been made of the effectiveness of existing training programs? The work to create a new training standard is not a judicious use of resources in order to strengthen the reliability of the bulk electric system. The argument that FERC has mandated SAT-based training programs in its order does not preclude the possibility that the FERC conclusion is wrong and unneccesary.

This standard goes beyond requiring a new training program. The standard seems to dictate the material on which operators are to be trained and how they are to be trained. The NERC operator certification program already determines that operators possess the minimal requirements to reliably operate the bulk electric system. Why should a training program duplicate the certification process? Currently there is ample incentive to have operators trained on company-specific tasks. An operator who is not capable of performing company specific task will not remain an operator at that company.

Many of the tasks listed in Appendix A do not seem to be reliability related and some would seem to be beyond the scope of a system operator position. For example, Item 18, says "Ensure that transmission contract paths are not exceeded." This item is more of a regulatory or business requirement than a reliability concern. Item 42, "Prepare daily reports and logs generated to meet company and regulatory requirements." This item may be important, but it is not important for reliability. Item 65, "Implement specified procedural actions in the event of a FERC Standards of Conduct violation." How is this item reliability related? Item 9, "Interpret relay targets, during forced outages." This item would be the responsibility of a system protection engineer who would provide guidance to the system operator and would not be the sole responsibility of the system operator.

In rebuttal to the "Background Information" provided above, work on this proposed training standard should cease and the standard should not be implemented for the following reasons:

1. Training is currently being provided to NERC Certified System Operators as a part of the NERC conitinuing education requirements for system operators and as also required in PER-002, R3.
2. Emergency Operations training is currently required in PER-002, R4.
3. Entities are currently allowed to determine and develop training based on individual training needs to support operation of the Bulk Electric System.
4. The language of the standard is too prescriptive especially, but not limited to, the inclusion of Attachment A and Attachment B.
5. Entities do not need a common starting point for training because of the extreme operational differences between entities.
6. Entites currently implement successful training programs as required by PER-002, R3.
7. The conclusion and assumption from the August , 2003 blackout investigation that Sytem Operators were not prepared to react in a manner that preserves the reliability of the interconnection is not correct. The operators were indeed prepared and were reacting to the events before the August, 2003 blackout in a manner to preserve the reliability of the interconnection by using the best data and information available to them. System Operators today are trained to perform tasks assigned to their position.

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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

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The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments: The intent of this section is acceptable, however, the wording assumes a level of performance that may not be present. An assessment is made to identify gaps between the knowledge or skill level of the worker and the requirements of the job. The requirements of the job are identified as the past requirements and new requirements.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: If the number of hours of training are going to be in either standard, it should be in PER-005 only; however, the training areas is what should be specified and the number of hours left to the responsible party.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: Paragraph 4.2 adds confusion to the standard. We recommend deleting this paragraph. The standard does not address requirements for delegates and it is therefore left to the reader to interpret what, if any, would be applicable. Delegates could be interpreted down to the crews, and we are sure that this interpretation is not intended.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
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Additional Member Name	Additional Member Organization	Region*	Segment*

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Background Information

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: It is unclear as to whether the assessment is for the position or each operator in the position. The Standard should reflect the training needs, in relation to the defined company specific reliability related tasks, for each position and would then be updated as needed. If there were no changes to that position in regards to the defined company specific reliability related tasks in the previous year, the position would be reviewed and updated every three years.
   It is also unclear in R.2.1 as to the identification of mis-matches between acceptable and actual performance capability. What is acceptable to one company may not be to another and therefore is left open to interpretation in the measurement, M.2. How would this be assessed in either the readiness evaluation or a compliance audit?

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The NERC System Personnel Training Standards as the repository for all training identified in the standards and therefore recommends this requirement not be duplicated in the System Restoration and Blackstart standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The standard in its current language does not define how each task is to be assessed and documented. For instance would a check off sheet with the identified company-specific reliability related tasks be adequate? If a checkoff sheet were utilized, would this assessment be considered an annual process or is a one time verification acceptable? What is the benefit to the operator in assessing each task? Do the tasks identify whether they will be performed as a team or individually and under normal or emergency conditions? Capabilities of an operator are a subjective interpretation by each company and measure (M.4) is left open to a wide interpretation by the evaluators and auditors. How would this be assessed in either the readiness evaluation or a compliance audit? If companies are following the standard to provide annual training, then the assessments for each task would at times be duplication of the annual and on going training and therefore create additional work for a trainer.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: However, we would like a definition for long term planning?

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The purpose of the Violation Risk Factors is for use when determining a penalty or sanction. In reviewing the measures all requirements are administrative in terms of providing documentation that the requirement has been met. Training generally occurs outside of the real-time operations which have little impact on the BES and therefore a "Lower" risk factor versus the "Medium/High" risk factors would be appropriate.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: If the requirements change, then the measures should be changed to reflect the revised requirement.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:
   D.1.2 What is the compliance monitoring period and when does the reset period begin if training is an annual requirement?
   D.1.3 is referencing data retention; a question arises over "mitigation plans". Who does it apply to, the entities program or the operator?
   We also question the four year data retention, what is the purpose since it is counter to D.1.4 requirement of a Compliance Audit every three years.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The violation severity levels are to complicated. The violation severity levels are extremely defined in comparison the requirements. To comply with the violation severity levels would be a huge onerous task on any entity based on the implementation plan.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☒ No

Comments: The implementation plan would be acceptable if
NERC can develop the Standard so that they are clear and specific.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: This standard, along with the approved NERC Continuing Education training, records would be duplicated by the continuing education provider, now that operators must maintain their certification through continuing education.
The standard should be job task specific and not operator specific.
Specific training requirements should be found in one standard, not throughout eighty or more.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs and ISOs
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: **Pepco Holdings, Inc. Affiliates**

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Contact Organization: Pepco Holdings, Inc.

Contact Segment: 1

Contact Telephone: 301-469-5274

Contact E-mail: rjkafka@pepcoholdings.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Valerie Hildebrand	Potomac Electric Power Company	RFC	1
John Keller	Atlantic City Electric	RFC	1
Vic Davis	Delmarva Power	RFC	1

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

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The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Comment 1. PHI is not sure what is meant by this requirement. The language is confusing. We understand assessing the training needs of individuals and setting or identifying training requirements for positions but not training needs for positions. Could the drafting team clarify what it meant by this statement? Our concern extends to sub requirement 2.1 as well, because it uses the same confusing language. R2.2 which refers to new tasks or changes to existing tasks for each position is easier to understand. When the tasks for the position change, we should be aware of this and provide a mechanism for ensuring this new content is incorporated into the tasks or responsibilities of the position. Isn't this all that is really needed? Comment 2. Because we are not quite sure what the assessment involves we do not agree that an annual assessment is reasonable.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The requirement to provide 32 hours of EOP training annually belongs in the Personnel Training Standard because as listed in Attachment B, it encompasses a slightly broader set of topics than Restoration and Blackstart. Other standards, in addition to the Blackstart standard (i.e. Cyber Security and BUCC) have also identified training requirements. PHI believes any required or mandated training deriving from another standard should be specifically identified in the Personnel Training Standard with a cross reference to the applicable standard for the details of the requirement. (i.e. personnel, topics, length, frequency of the training etc.) and whether it may be included in an individual's required 32 hours of EOP or would be in addition to that.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: The requirement does not specify a time period. As stated, this would be a one-time check to determine that each operator can perform the assigned tasks and PHI would expect that we could complete that assessment over a period of time. If that is the case PHI agrees.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Except where we would like some clarification of Requirement 2 so that we would be clear about what is being assessed. See our comment to Q1

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: PHI feels the wording of the Violation Severity Levels is confusing. Lower does not seem reasonable - If an entity has reviewed the list, agrees with it completely and has nothing to add, they would appear to be in violation. Similarly Moderate seems to be saying that if an entity has started creating a list of all reliability related tasks but hasn't finished it, has identified training but hasn't scheduled it or has given so called EOP training but not from topics on Attachment B and done nothing else--they warrant a Moderate violation. But, if they have done almost everything but not quite met the requirement, they warrant a High violation. We are sure this is not the way these are meant to be understood. Perhaps starting with the Severe Violations and working down to moderate would be a better way to delineate what a moderate and lower violation would look like.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
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	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: PJM

Lead Contact: Albert DiCaprio

Contact Organization: PJM

Contact Segment: 2

Contact Telephone: 610-666-8854

Contact E-mail: dicapram@pjm.com

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Alicia Daugherty	PJM	RFC	2
Glen Boyle	PJM	RFC	2
Ray Gross	PJM	RFC	2
Mark Kuras	PJM	RFC	2
Stephanie Monzon	PJM	RFC	2
Tom Bowe	PJM	RFC	2

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: PJM not only agrees that an operator needs-assessment be done at least annually, PJM supports continuous assessment of operator training needs. That said, PJM does not agree that a prescriptive standardized process is desirable or feasible. Performance evaluation is a corporate responsibility not a NERC standard. PJM proposes that this standard be refocused from a standard that requires a set annual needs-assessment, to a standard mandating a given number of hours of continuous training through NERC-accredited Training programs.

   Please refer to our comments in response to Question 11.

   Discussion:
   An operator training needs-assessment is not a requirement that can be developed easily. Having an industry-wide competency level lends itself to debates, possibly without an agreement, particularly given there is already an operator certification examination. A standard that leaves definition of competency to be developed by the individual responsible entities would subject to requirement to a "fill-in-the-blank" category, which FERC has stated must be eliminated.

   A fixed annual needs-assessment may devalue a continuous needs-assessment program. A fixed annual program by definition focuses on a one-time evaluation. With such fixed programs, organizations and operators may be more focused on performing and passing a given evaluation, then focusing on a comprehensive evaluation of individual needs - an evaluation that involves subjective analysis such as interpersonal skills under stress evaluation.

   A fixed annual needs-assessment may be useful from an auditor perspective, but it does not reflect the varied undefined times that training occurs.

   To identify a 'need" an auditable test evaluation would require a standardized scoring system. Does a score of X% indicate a need for training? Indeed how would a test identify in which area is the training need exists? Requirement 2 imposes a subjective obligation of "acceptable" capability. R2.1 mandates that "mismatches" be identified. However, the draft standard does not identify a mismatch.

   Today, training is provided for all changes that a corporate entity believes needs training. Similarly, corporate entities may not even provide training on new tasks that are self-explanatory. R2.2 mandates the compliance entity identify which tasks fall in which category. That subjectivity is reasonable but it is not what one would consider an industry standard.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication

of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

Comments: It is not important which standard includes the subject requirement. Either way, the same entities will be mandated to comply. What is important is that one or the other be removed. If required to choose, PJM would suggest including all requirements in the Training standards.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

☐ Yes

☒ No

Comments: If there were a possibility of developing and quantifying a viable level of competency, then PJM would support such a requirement. However, PJM believes that the determination of this competency level and assessment of the mismatch would be troublesome and likely not measurable.

The idea of entity-identified task lists is the antithesis of the word standard. The question of training is paramount to everyone. The issue raised here is whether or not it is sensible to write an Industry Training standard. Assessing the capabilities of a given System Operator is an art not a science. To mandate such a art can (and likely will) result in entities being tied up in labor hearings for a long period of time debating whether or not the operator's 'capability level' is effectively measured by the NERC standard. Requirement 4 does not provide any quantifiable measure for identifying an operator's capabilities. Picking and choosing from a list makes this requirement even more subjective then a NERC-wide standard should be.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to. The CCC will have final say on these elements in any case; therefore the SDT would save itself some effort by focusing on the primary elements before weighing in on the compliance elements.

However, given the question being posed:

PJM believes that assigning long-term planning to all the requirements is inappropriate, if not over-simplistic. For example, the annual assessment of the training need and the subsequent development-of/revision-to a training program, as the requirement implies, occurs once every 12 months. This is normally regarded as an operations planning time frame if violation of this requirement is to be mitigated.

Training in each of the requirements can cross over time horizons.
Requirement 1 (which has not been vetted) states the entity must use the SAT 5 phases for all reliability-related tasks. If a new task that requires training is created for implementation tomorrow, how would that training program fall under long-term planning?

Requirement 4 - when a new task arises, (assuming one accepts the premise of the requirement itself) then shouldn't the assessment take place as soon as possible?

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to. The CCC and FERC will have final say on these VRFs, therefore the SDT would save itself some effort by focusing on the primary elements before weighing in on the compliance elements.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Measure 1 is not quantifiable. What evidence will demonstrate 'desired performance', if the desired performance is not defined in the standard itself?

   Because Requirement 2 is subjective, Measurement 2 is meaningless in the context of a NERC reliability standard.

   Measurement 3 is proof of attendance and not a true indicator of reliability impacts.

   Measurement 4 requires that the subjective verification of the "capabilities" be documented. Even if such a measurement could be standardized, as written this measurement requires nothing more that documentation of ineptness.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to.

   PJM would note the following:
   1. The entity "Compliance Enforcement Authority" is a new term. It is not found in the Functional Model.

   2. The compliance elements should not impose requirements that are not in the standard itself. To require a responsible entity to maintain records on whether it is following or followed any mitigation plan associated with the standard is outside the standard itself. The standard does not address mitigation plans anywhere. This also applies to the requirement on the Compliance Monitor to retain any data used in mitigation plans associated with this standard, particularly since the Compliance Monitor does not appear on the Applicability List at the beginning of the standard.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to.

PJM would note that a SEVERE VSL is applied for missing evidence of using two phases of the SAT; as well as applying a SEVERE VSL for not having a program at all. This would result in an organization that inadvertently is missing evidence is held to the same VSL level as an organization that consciously has no program at all.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to.

PJM does not support this standard as written, and therefore cannot agree to any implementation schedule at this time.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☒ Yes

☐ No

Comments: The lack of objectivity in these requirements will conflict with labor union contracts. In addition the draft standard does not meet NERC or FERC requirements regarding clarity and measurability; nor does the draft meet the FERC objection to fill-in-the-blank standards.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:
Several representatives of the ISO/RTO Council, in conjunction with discussions with Drafting Team members, have been informed that the intent of this Standard is to standardize and clarify what is and is not appropriate training materials for acceptance into the NERC Continuing Education Program. This is not well understood by the industry and, if this is indeed the case, PJM supports such an effort. The way the existing draft is being interpretted by the industry, however, is that this will be an additional requirement, over and above (and possibly in conflict with) the NERC Certification maintenance requirements currently contained in the NERC Continuing Education Program.

PJM agrees that:
- Training is a critical function for our industry, and would note that NERC already ties Continuing Education Hours to the maintence of NERC Certification.

- General in-house training programs must be permitted to be structured to the varied ad hoc needs of the given organizations, their tools and their environment, and not subject to NERC standards.

- Critical training be provided by accredited programs, and that NERC may desire to accredit programs used to provide CEH on those critical topics (e.g. Emergency Operations; Blackstart).

- the result of a Training standard should be an operator that is prepared to handle that operators system; the result should NOT be the production and storage of paperwork.

PJM does not agree that:

- It is necessary that every organization has its own accredited program. As written, R1 requires that responsible entities complete the five phases of a systematic approach to training (SAT), which includes analysis, design, development, implementation, and evaluation) to establish a new or modify an existing training program. We do not agree that this should be a requirement.

The requirement should be for the responsible entity receive training to help system operation personnel to acquire the competency to perform the applicable tasks pertaining to the RC, TOP and BA functions that the entity is responsible for or assigned. PJM neither endorses nor disapproves the SAT process as a good approach>

However, how any training program is arrived at (i.e. what approach it takes) is not important and should not be a standard. If so inclined, NERC itself could offer an SAT-based Training program. How could one make an argument that using other approaches to arrive at a training program that (a) list the tasks and competency level required to perform the task, (b) include the minimum requirements stipulated in this standard such as the 32 hours emergency training, (c) has provision for a training schedule, review process, etc. is not an acceptable approach?

Performance and capability are subjective ideas. Given all of the tests and training, no one can predict how a human will act. To state that the person is 'incapable' is a very strong statement and can only be made on a case-by-case basis - which by definition precludes a NERC standard.

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Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Sarah Lutterodt	
Organization:	Quality Training Systems	
Telephone:	443 755 0790	
E-mail:	s.lutterodt@att.net	
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☒ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs and ISOs
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	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments:

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments: See detailed comments below relating to Violation Level 2.2.1 requiring use of the Generic Task List provided as an attchment to the Standard.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:
    This comment relates to Requirement R1.1 that each Reliability Coordinator, Balancing Authority and Transmission Owner should use the generic task list in the Attachment to the draft standard as the basis for their own JTA.

    The task list contains important information and would certainly be useful as a guide for entities starting out on the JTA process, but we do not believe that the list is sufficiently well developed to be a required starting point. Quality Training Systems has developed and refined its generic task list for system operators over several years, making extensive use of NERC source documents and with advisement by Industry Experts. We recognize the difficulty in developing a coherent, well-categorized task list at a consistent level of detail, but we are nonetheless concerned at offering an industry standard that still offers considerable room for improvement.

    1. Classification System
    The categorization scheme is difficult to follow in places as evidenced by the fact that closely similar tasks are listed in different Sections of the task list and - within a given

section - under different Types of Activity. Consider, for example, the following tasks relating to voltage control:
"Monitor and maintain defined voltage profiles to ensure system reliability." (Gen CC Ops 31 under Monitor)

"Utilize reactive resources from transmission and generator owners to maintain acceptable voltage profiles." (Gen CC Ops 60 under Operating)

"Monitor the voltages, and coordinate the reactive dispatch of transmission facilities, and the interconnections with neighboring systems." (Trans. Ops 34 under Operating)

"Deploy reactive resources to maintain acceptable voltage profiles." (Trans. Ops 51 under Voltage)

"Coordinate operation of voltage control equipment with interconnected utilities." (Trans. Ops 55 under Voltage)

2. Consistency
There is a lack of consistency in the level of detail of the task statements. Some tasks are extremely general, and would be difficult to train in the stated form. For example:

"Direct and/or regulate the operation of the transmission system" (Trans 15)

"Enforce operational reliability requirements" (Gen CC Ops 47)

Other tasks are very specific and might be considered as steps in a larger task. For example:

"Notify all affected areas that line loading relief has been requested, and that corrective actions are required" (Trans. 68)

"Manually calculate net interchange when needed" (Int. 17)

3. Repetition
Many tasks are repeated with closely similar wording or wording such that the more general statement includes the other more specific task(s). For example, compare :the following two tasks taken from different Sections of the Task list:

"Implement system restoration procedures" (Gen. CC Ops 68):

"Following a partial or total system shutdown, implement the appropriate provisions and procedures of the system's restoration plan in a coordinated manner with adjacent systems" (Emer. Ops 50)"

4. Clarity
A few of the task statements are unclear or poorly worded. Consider, for example; the following task, the intent of whiich seems to be captured in better-stated items elsewhere in the list:

"Direct to the appropriate entities those options necessary to relieve reliability threats and violations in a reliability authority area" (Gen. CC Ops 55)

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Organization:		
Telephone:		
E-mail:		
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Group Comments (Complete this page if comments are from a group.)

Group Name: RCSDT Project 2006-06

Lead Contact: William M. Hardy

Contact Organization:

Contact Segment: **RCSDT** - Chair

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Contact E-mail: wmhardy@southernco.com

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

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The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

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- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments:

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: The RCSDT has a conflict between teams for ownership of the scope for PER-004 and feel that it belongs with Project 2006-1 which has PER-004 posted with PER-005 for comment. Project 2006-1 removed three of the PER-004 requirements and left in two. During the RCSDT review, we removed the same three requirements but also suggested removing the other two because they are redundant with other standards as follows:

    PER-004 R.1 is redundant with PER-003
    PER-004 R.5 is redundant with COM-001 and IRO-002

    The RCSDT request that ownership of PER-004 be scoped within Project 2006-1. The RCSDT is willing to assist Project 2006-1 in completing the review task.

    Respectfully,

    William M. Hardy
    RCSDT - Chair

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Scott Peterson	
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E-mail:	speterson@semprautilities.com	
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
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The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

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- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The 32 hour training requirement should be in the System Restoration plan. PER-005 is really focused on what should be in a training program.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: It may be appropriate to perform an assessment, but the standard is getting over-prescriptive to require giving an assessment on a line by line basis. The assessment should be more global in nature regarding the general level of competency of the operator to perform the job functions.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: It is unclear what is the meaing of the time horizons.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The requirement for emergency training is in multiple standards (e.g. PER-002-0 R4. This then leads to the potential for multiple violations for the same deficiency. This training requirement should only be in one standard.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The implementation for R3 should allow an organization time to put any new training requirement into its regular training plan. Put that it needs to be included in the next years annual training program.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:

    Applicability 4.2 is unclear. Who do you define as delegates? Are you looking to expand the applicability to personnel that are outside the control center real time operating postions? Also it refers to applying to those that "impact reliability"? This should be for something that has a signficant negative impact, not just any impact, no matter how diminimus. There needs to be more clarity as to whom the System Operator training standards apply.

    Attachment A: Are you implying that anyone that does any of these function is in a System Operator position? In some cases, this work is done by back office staff or

engineering. I do not believe all of these tasks need to be done by a System Operator with the level of training set up for them that you have designed. For example, Item 45, Perform next day reliability analysis of the electric system. This may be done by engineering staff, rather than a System Operator. Are you now saying they are System Operators? Or are you still limiting System Operators to the real-time operating positions that control the system?

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Group Comments (Complete this page if comments are from a group.)

Group Name: Santee Cooper

Lead Contact: Terry Blackwell

Contact Organization: Santee Cooper

Contact Segment: Transmission

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Additional Member Name	Additional Member Organization	Region*	Segment*
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Glenn Stephens	Santee Cooper	SERC	1
Rene' Free	Santee Cooper	SERC	1
Kristi Boland	Santee Cooper	SERC	1
Jim Peterson	Santee Cooper	SERC	1
Wayne Ahl	Santee Cooper	SERC	1

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The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: However, it is not clear from the Requirement or Measure what is necessary to have an acceptable assessment.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: All training requirements should be listed in this standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Yes, assuming this is a one-time verification until the reliability related tasks change.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

☒ No

Comments: M2, M3, and M4 appear to be appropriate measures. M1 and R1 should not be included in a Reliability Standard. The Standard should address training that is required and not dictate how a company should implement their training.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Most NERC Standards require three years or less for documentation to be maintained.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The standard should not dictate how a training program should be implemented as implied by 2.3.1.

Severe Level for the 32 hours of EOPs would be that no training was provided to any of the operators, High would be that some training was provided but not all 32 hours or several operators did not complete all 32 hours. Moderate would be that 32 hours were provided but one operator did not complete or the training did not include drills, exercises, or simulations. If one operator does not complete 32 hours of EOPs training as written in 2.3.3, it should be a Moderate Violation Severity Level rather than a High Violation Severity Level.

The violation severity levels associated with the other requirements aren't appropriately graduated either.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: The System Personnel Training Standard should address training that is required for reliable operation of the BES. It should not dictate how a company must implement its actual training program.

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Jim Fee	
Organization:	Sacramento Municipal Utility District	
Telephone:	(916) 732-6157	
E-mail:	jfee@smud.org	
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☒ **WECC** ☐ **NA – Not Applicable**	☒	1 — Transmission Owners
	☐	2 — RTOs and ISOs
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	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:
   Assessment should be every two years

   Need to clarify what is being assessed. Is this referring to the Job Task and Analysis or System Operator Training?

   What tasks should be reviewed? Every task associated with each operating position? BES company specific reliability issues?

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments:

   System Personnel Training Standard Only.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: We assume this is a one time evaluation of operating personnel on each assigned task that is on its list of company-specific reliability-related tasks. Subsequent evaluations should be at the discretion of the system operator's management.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Please define Long Term Planning.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: All entities' risk factors should be assessed based on their possible impact to the BES.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Please define Compliance - 1.2 Monitoring Period Reset.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: 2.2.2 What tasks should be reviewed? Every task associated with each operating position or BES company specific reliability issues?

   2.2.3 Regarding attachment "B" – Does this require all tasks listed or only selected topics?

   2.3.2 Should this be limited to BES company specific reliability tasks.

   2.1.3 Should read "The responsible entity did not add or remove topics from the Emergency Operations Topics as provided in attachment "B" that apply to their organization."

   Severity levels may be too excessive.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: All training requirements per standard should be cross referenced and included in a PER attachment or could even be excluded from the individual standards.

    On the cover letter, SMUD disagrees that the verification of qualifications for people developing / delivering training should be eliminated. Also, SMUD disagrees on the elimination of the requirement addressing maintenance of the system operator training program. SMUD believes the methodology used to perform the analysis phase of a systematic approach to training (SAT)should be required in the standard not just the phases of the SAT process.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
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	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact: Mike Pfeister

Contact Organization: Salt River Project

Contact Segment: Transmission Owner

Contact Telephone: 602-236-3970

Contact E-mail: Mike.Pfeister@srpnet.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Mike Gentry	Salt River Project	**WECC**	Transmission Owner

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: This requirement should be in a PER standard. Ideally any requirement for training should be in a PER standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: R4 is OK as written. It appears to allow for various methods of verfication of capabilities such as observed actual performance, observed performance using simulation tools, and testing. This should work given the various task frequency and various levels of criticality.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The severity levels are too extreme. Section 2.3.1 states a HIGH severity for missing one out of five phases of the SAT process. An entity that is using four of the five, which is an 80% use rate, should not be penalized with a HIGH severity violation. The severity for this ocurrence should be reduced to at least a MODERATE.
   Section Section 2.4.1 states a SEVERE severity for missing two out of five phases of the SAT process. An entity that is using three of the five which is an 60% use rate should not be penalized with a SEVERE severity violation. The severity for this ocurrence should be reduced to a HIGH severity.
   The SEVERE severity should be used for missing three of the five SAT phases.
   In summary:
   Moderate Severity: Missing one of the five SAT phases.
   High Severity: Missing two of the five SAT phases.
   Severe Severity: Missing three of the five SAT phases.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: The standard describes a specific “Systematic Approach to Training (SAT)”. This includes specific “phases” that must be included with various violation severity levels associated with the use/non use of these phases. The Standard as written is exceedingly restrictive in not allowing other training options to be considered for RC’s, BA’s and TO’s. An entity should have the option to select a training philosophy and program that meets their individual needs. This “one size fits all” for the entire industry is entirely too restrictive.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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Organization:		
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Group Comments (Complete this page if comments are from a group.)

Group Name: Southern Company Transmission

Lead Contact: Roman Carter

Contact Organization: Southern Company Transmission

Contact Segment: 1

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Contact E-mail: jrcarter@southernco.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Marc Butts	Southern Co. Transmission	SERC	1
J.T. Wood	Southern Co. Transmission	SERC	1
Jim Busbin	Southern Co. Transmission	SERC	1
James Ford	Southern Co. Transmission	SERC	1
Fred Rains	Southern Co. Transmission	SERC	1

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

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The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: From a organizational perspective, it would be best to include emergency and restoration training in the System Personnel Training standard. This way, all training is in a central location and would prevent system operator trainers from searching throughout the approximately 117 standards to find the particular standards related to training.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Long-term planning is the appropriate time horizon.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Medium risk factor is appropriate for all.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Under D2.2 and D2.3.1.1 it states in the Note for each of the subsections that if R1.1 or R1.2 is violated, the entity is also in violation of R1. This is double jeopardy and does not seem correct, especially where the subsection only provides more detail about what is being required in the above section and does not represent a new requirement.

   R1 says you must complete the five phases of a SAT to establish a new or modify an existing company specific training program.

   R1.1 provides some specific details about what the analysis phase of the SAT training program should consist of. If you do not complete R1.1 adequately then there should be only one violation and not two violations.

   Under Data Retention, a minimum of four years of data retention is not appropriate. It should be restated to say a maximum of 3 years of data should be retained or since the last compliance audit has been performed. However, if the entity had been found to be non-compliant for a particular requirement in the most recent compliance audit, then additional data should be retained for longer than the previous compliance audit but no longer than 3 years.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Under Violation Severity Levels, it is not obviously apparent that missing two of the five phases of a SAT should have the same severity as not having a SAT program at all. There should be some differences in violation severity between the two.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

☒ No

Comments: The question should have stated: If yes, please explain in the comment area.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Operating Reliability Working Group	
Organization:	Southwest Power Pool	
Telephone:	501-614-3241	
E-mail:	rrhodes@spp.org	
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
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☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Operating Reliability Working Group

Lead Contact: Robert Rhodes

Contact Organization: Southwest Power Pool

Contact Segment: 2

Contact Telephone: 501-614-3241

Contact E-mail: rrhodes@spp.org

Additional Member Name	Additional Member Organization	Region*	Segment*
Brian Berkstresser	EDE	SPP	1,3,5
Will Franklin	EES	SERC	5,6
Mike Gammon	KCPL	SPP	1,3,5
Don Hargrove	OKGE	SPP	1,3,5
John Kerr	GRDA	SPP	1,3,5
Pete Kuebeck	OKGE	SPP	1,3,5
Mark MacDonald	CLECO	SPP	1,3,5
Danny McDaniel	CLECO	SPP	1,3,5
Kyle McMenamin	SPS	SPP	1,3,5
Robert Rhodes	SPP	SPP	2
Jim Useldinger	KCPL	SPP	1,3,5

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: There was much confusion within our group as to whether this requirement is directed toward the position of System Operator or to the individual operator. Although we struggled with finding words to clarify the point, could the SDT take this back to the drawing board and attempt to make the distinction clearer?

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The 32-hour annual training requirement for emergency operations and system restoration belongs in PER-005-2. All training requirements should be consolidated within the System Personnel standards.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: We can concur with this requirement providing the assessment process does not become burdensome on the entity providing the assessment. A one-time assessment, while not burdensome of itself, may be inadequate to ensure continued operator performance. On the other hand, annual assessments would require an excessive amount of administrative time. A possible solution could be to allow company-specific assessment criteria such as being proposed for performance criteria.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: It is our understanding that the Time Horizon of Long-term Planning allows a mitigation period of one year or more.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: We can concur with maintaining the VSL of Medium on Requirement 1 but would recommend dropping the VSL to Low for R2, R3 and R4 since these requirements tend to be administrative.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Although we can not offer any suggestions for making it more focused, Measurement 1 is very broad. We are concerned about how we would be able to demonstrate that we have satisfied the requirements the way it is currently written.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: There is an inconsistency between the data retention requirement in D1.3 and the on-site review requirement in D1.4. We would suggest deleting the phrases '…for four years, or…' and '…, whichever is greater.' in the first sentence of D1.3. Both time period requirements would then be based on the last on-site audit.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The proposed severity levels are too complicated and need to be simplified.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Requirement 1 should be effective 18 months after the first day of the first quarter following regulatory approval and Requirements 2 and 4 should be effective 36 months after the first day of the first quarter following regulatory approval.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

Comments: Has the SDT taken into consideration dealing with bargaining units when conducting the assessments on individual System Operators. In some bargaining units, individual performance assessments have been eliminated.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: While we don't have an issue with requiring a training program, we do take exception to having to maintain all the documentation that will be required as the standard is currently proposed.

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Howard Rulf	
Organization:	We Energies	
Telephone:	262-574-6046	
E-mail:	Howard.Rulf@we-energies.com	
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs and ISOs
	☒	3 — Load-serving Entities
	☒	4 — Transmission-dependent Utilities
	☒	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: Training requirements should only be in training standards.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: Yes as long as this will not be an annual requirement. There will be tasks that need to be assessed very infrequently.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

Comments: Wording of M1 and sub measures should be simplified/clarified. Wording of M1.2 should not preclude using training material from a vendor.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: 1.3 Data Retention - how long must evidence that a mitigation plan was followed be kept?

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:
   Many of the violation severity level statements need to be simplified/clarified (similar to M1).
   2.2.3 - R3.1 requires the training be from topics in Attachment B, so there would be no emergency training if the training was not from Attachment B topics.
   2.3.3.1 The current wording of R3.1 does not allow training in principles, only drills, exercises, or simulations. See question #11.
   2.4.3 The statement after OR is unnecessary. If 32 hours were not provided annually then the first statement applies.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Implementation of R2.2 at the 18 month point requires that R1.1 (implemented in 36 months) be completed first.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: PER-002-0 R4 allows "five days per year of training and drills using realistic simulations of system emergencies". PER-005-1 R3.1 allows only "using drills, exercises, or simulations". Removal of the word "training" forces the 32 hours to be only drills, exercises, or simulations. Classroom type training could not be counted toward the 32 hours.

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Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☒ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs and ISOs
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	☒	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: WECC Operations Training Subcommittee (OTS)

Lead Contact: Lauri Jones

Contact Organization: PG&E

Contact Segment: 10

Contact Telephone: 415-973-0918

Contact E-mail: LLJ8@pge.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Eric Hudson	CAISO	WECC	10
Brian Tuck	BPA	WECC	10
Ken Driggs	WECC	WECC	10
Rod Byrnell	BCTC	WECC	10
Brian Reich	IPCO	WECC	10
Richard Krajewski	PNM	WECC	10
Hank LuBean	DOPD	WECC	10
George Noller	SCE	WECC	10
Dick Schwarz	PNSC	WECC	10
Jon Crook	SMUD	WECC	10
Rick Brock	PSC	WECC	10
Warren Maxvill	AVA	WECC	10
Eric Langhorst	WECC	WECC	10
Robert Eubank	TSGT	WECC	10
Ron Verraneault	PAC	WECC	10

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28, 2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: WECC OTS is unclear as to whether the assessment is for the position or each operator in the position. The Standard should reflect the training needs, in relation to the defined company specific reliability related tasks, for each position and would then be updated as needed. If there were no changes to that position in regards to the defined company specific reliability related tasks in the previous year, the position would be reviewed and updated every three years.
   It is also unclear in R.2.1 as to the identification of mis-matches between acceptable and actual performance capability. What is acceptable to one company may not be to another and therefore is left open to interpretation in the measurement, M.2. How would this be assessed in either the readiness evaluation or a compliance audit?

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: WECC OTS views the NERC System Personnel Training Standards as the repository for all training identified in the standards and therefore recommends this requirement not be duplicated in the System Restoration and Blackstart standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: WECC OTS feels the standard in its current language does not define how each task is to be assessed and documented. For instance would a check off sheet with the identified company-specific reliability related tasks be adequate? If a checkoff sheet were utilized, would this assessment be considered an annual process or is a one time verification acceptable? What is the benefit to the operator in assessing each task? Do the tasks identify whether they will be performed as a team or individually and under normal or emergency conditions? Capabilities of an operator are a subjective interpretation by each company and measure (M.4) is left open to a wide interpretation by the evaluators and auditors. How would this be assessed in either the readiness evaluation or a compliance audit? If companies are following the standard to provide annual training, then the assessments for each task would at times be duplication of the annual and on going training and therefore create additional work for a trainer. The OTS supports assessing the capabilities of the operators, however, we suggest it be more in line with the system operator certification, i.e. every three years.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: However, we would like a definition for long term planning?

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: OTS recommends the violation risk factors be set to 'Lower'.
   The purpose of the Violation Risk Factors is for use when determining a penalty or sanction. In reviewing the measures all requirements are administrative in terms of providing documentation that the requirement has been met. Training generally occurs outside of the real-time operations which have little impact on the BES and therefore a "Lower" risk factor versus the "Medium/High" risk factors would be appropriate.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: OTS is suggesting in its comments changes to the requirements, therefore the measures would be changed to reflect the changes to these requirements. It also does not address training provided by third parties or vendors. What requirements would companies be under if this type of training were provided?

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: OTS does not agree with the Compliance Monitoring Process in the revised standard and has several questions.
   D.1.2 What is the compliance monitoring period and when does the reset period begin if training is an annual requirement?
   D.1.3 is referencing data retention; a question arises over "mitigation plans". Who does it apply to, the entities program or the operator?
   We also question the four year data retention, what is the purpose since it is counter to D.1.4 requirement of a Compliance Audit every three years.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: WECC OTS feels the violation severity levels are to complicated. The violation severity levels are extremely defined in comparison the requirements. To

comply with the violation severity levels would be a huge onerous task on any entity based on the implementation plan.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: The WECC OTS questions the implementation plan, when they do not agree with the current requirements. However, the implementation plan would be acceptable if NERC can develop the Standard so that they are clear and specific.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: The WECC OTS is the principle group in the Western Interconnection to support the WECC training program and providing support to the trainers in the West. It is the OTS belief that quality training can and should result in quality System Operators and improved system reliability and therefore, we are supportive of the effort by the drafting team for their efforts to ensure the system operator responsible for the BES meets a minimum competency and knowledge levels. Quality training requires analysis and process and the OTS supports a requirement for development, delivery, and evaluation of system operator training using a "systematic approach to training" as required in this Standard and endorsed by the FERC.
    However, the OTS feels that this standard, along with the approved NERC Continuing Education training, records would be duplicated by the continuing education provider, now that operators must maintain their certification through continuing education. Therefore, the WECC OTS recommends this standard be job task specific and not operator specific.
    The OTS has also identified several training specific needs in other NERC Standards and would like to recommend that all training requirements in the current NERC Standards and future Standards only be identified in the NERC System Personnel Training Standard. While it is necessary to mention in the various standards, training needs per that standard, specific training requirements should be found in one standard, not amongst eighty or more. This allows the training staff responsible for the training compliance measures to coordinate and provide training for all future and current training needs.
    OTS suggests this Standard focus on Certified System Operators only at this time. The training for CE to support Certified System Operators using the SAT process should be covered at this time.

Consideration of Comments on 2nd Draft of System Personnel Training Standard

The System Personnel Training Standard Drafting Team (SPT SDT) thanks all commenters who submitted comments on the second draft of the standard. This standard was posted for a 45-day public comment period from August 15, 2007 through September 28, 2007. The drafting team asked stakeholders to provide feedback on the standard through a special Standard Comment Form. There were more than 43 sets of comments, including comments from 130 different people from more than 70 companies representing 9 of the 10 Industry Segments as shown in the table on the following pages.

In this document, the SPT SDT's consideration of comments is provided in blue text immediately following each comment submitted for each question. A summary response to each question is highlighted in yellow following each question. The following conforming changes were made to the standard:

- Extended the Proposed Effective Date for Requirement 3 from effective immediately to 36 months after regulatory approval to allow entities sufficient time to include the use of a simulator in their emergency operations training.
- Combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks.
- Clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified.
- Clarified the language in R3, explaining the emergency operations training includes system restoration training.
- Added a clause to R3 that requires each entity to provide hands-on training using simulators for emergency operations training, per FERC Order 693 directives for this standard. (Note that the requirement does not address who 'owns' the simulator, just that a simulator be used.)
- Revised each of the measures to include examples of evidence that could be used to show compliance.
- Revised all of the VSLs, using the Draft VSL Development Guidelines Criteria and feedback from the industry.
- Removed Attachment A (Generic Task List) and converted Attachment B (Emergency Opeations Topics) to a Reference Document for this standard.

In this "Consideration of Comments" document stakeholder comments have been organized so that it is easier to see the responses associated with each question. All comments received on the standards can be viewed in their original format at:

http://www.nerc.com/~filez/standards/System-Personnel-Training.html

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President and Director of Standards,

Gerry Adamski, at 609-452-8060 or at gerry.adamski@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Reliability Standards Development Procedures: http://www.nerc.com/standards/newstandardsprocess.html.

The Industry Segments are:

1 — Transmission Owners
2 — RTOs, ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 – Regional Reliability Organizations, Regional Entities

Commenter		Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
1.												
2.	Bruce Fauvelle	Alberta Electricity System Operator		✓								
3.	William J. Smith	Allegheny Power	✓									
4.	Ken Goldsmith (G6)	ALTW										
5.	Jeffrey V. Hackman	Ameren	✓		✓		✓	✓				
6.	Thad K. Ness	American Electric Power	✓									
7.	Thad K. Ness	American Electric Power (AEP)	✓				✓	✓				
8.	Jason Shaver	American Transmission Co. (ATC)	✓									
9.	Mike Scott	Arizona Public Service	✓		✓							
10.	John Keller (G9)	Atlantic City Electric	✓									
11.	Warren Maxvill (G16)	Avista Utilities	✓		✓	✓	✓					
12.	Brian Tuck (G16)	Bonneville Power Administration	✓									
13.	Rod Byrnell (G16)	British Columbia TC (BCTC)										
14.	Thomas Fung	British Columbia TC (BCTC)		✓								
15.	Brent Kingsford	CAISO		✓								
16.	Eric Hudson (G16)	CAISO		✓								
17.	Brad Calhoun	CenterPoint Energy	✓									
18.	Alan Gale (G3)	City of Tallahassee					✓					
19.	Mark MacDonald (G14)	CLECO	✓		✓		✓					
20.	Danny McDaniel (G14)	CLECO	✓		✓		✓					
21.	Edwin Thompson (G7)	Con Edison	✓									
22.	Phillip Vavala	Delmarva Power	✓									
23.	Vic Davis (G9)	Delmarva Power	✓									

Commenter		Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
24.	Hank LaBean (G16)	DOPD										
25.	Brian Berkstresser (G14)	EDE	✓		✓		✓					
26.	John Bonner (G7)	Entergy Nuclear			✓							
27.	Edward J. Davis	Entergy Services, Inc.	✓									
28.	Will Franklin (G14)	Entergy Services, Inc. (Gen. & Mkt.)					✓	✓				
29.	Kent Grammer	ERCOT		✓								✓
30.	Doug Hohlbaugh (G1)	FirstEnergy Corp.	✓		✓		✓	✓				
31.	Sam Ciccone (G1)	FirstEnergy Corp.	✓									
32.	Dave Folk (G1)	FirstEnergy Corp.	✓									
33.	John Reed (G1)	FirstEnergy Corp.	✓									
34.	John Martinez (G1)	FirstEnergy Corp.	✓									
35.	Jerry Sanicky (G1)	FirstEnergy Corp.	✓									
36.	Dan Dipasquale (G1)	FirstEnergy Corp.					✓					
37.	Jim Eckels (G5)	FirstEnergy Corp.	✓									
38.	Jeff Gooding (G3)	Florida Power & Light Co.	✓									
39.	Ed DeVarona (G3)	Florida Power & Light Co.	✓									
40.	Donna Howard (G3)	FRCC										✓
41.	Billy Lee	Garland Power & Light	✓		✓		✓					
42.	John Kerr (G14)	GRDA	✓		✓		✓					
43.	Joe Knight (G5) (G6)	Great River Energy										✓
44.	David Kiguel (G7)	Hydro One Networks	✓									
45.	Roger Champagne (I) (G7)	Hydro-Québec/TransÉnergie (HQT)	✓									
46.	Ron Falsetti (I) (G7)	IESO		✓								
47.	Brian Reich (G16)	IPCO										
48.	Kathleen Goodman (I) (G7)	ISO New England		✓								
49.	Mike Locke (G3)	Jacksonville Electric Authority			✓							
50.	Jim Cyrulewski (G5)	JDRJC Associates								✓		
51.	Michael Gammon (G14)	Kansas City Power & Light	✓		✓		✓					
52.	Jim Useldinger (G14)	Kansas City Power & Light	✓		✓		✓					
53.	Eric Ruskamp (G6)	Lincoln Electric System										✓

Commenter		Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
54.	Steve Rainwater	Lower Colorado River Authority	✓				✓	✓				
55.	Don Nelson (G7)	MA Department of Public Utilities									✓	
56.	Joseph DePoorter (I) (G5)	Madison Gas and Electric				✓						
57.	Robert Coish (G6)	Manitoba Hydro	✓		✓		✓	✓				
58.	Tom Mielnik (G6)	MEC										
59.	Jason L. Marshall (G5)	Midwest ISO Stakeholders		✓								
60.	Michael Brytowski (G6)	Midwest Reliability Organization										✓
61.	Terry Bilke (G6)	MISO										✓
62.	Carol Gerou (G6)	MP										✓
63.	Mike Rannali (G7)	National Grid	✓									
64.	Randy MacDonald (G7)	New Brunswick System Operator		✓								
65.	James Castle	New York ISO		✓								
66.	Ralph Rufrano (G7)	New York Power Authority	✓									
67.	Michael K. Wilkerson	NIPSCO	✓		✓			✓				
68.	Murale Gopinathan (G7)	Northeast Utilities	✓									
69.	Reza Rizvi (G7)	NPCC										✓
70.	Guy V. Zito (G7)	NPCC										✓
71.	Al Adamson (G7)	NY State Reliability Council										✓
72.	George Brady (G8)	Ohio Valley Electric Corp.	✓									
73.	Scott Cummingham (G8)	Ohio Valley Electric Corp.	✓									
74.	Robert Mattey (G8)	Ohio Valley Electric Corp.	✓									
75.	Don Hargrove (G14)	OKE&G	✓		✓		✓					
76.	Pete Kuebeck (G14)	OKE&G	✓		✓		✓					
77.	Brian Gooder (G7)	Ontario Power Generation Inc.					✓					
78.	Ed Seddon (G3)	Orlando Utilities Commission	✓									
79.	Ron Verraneault (G16)	PAC										
80.	Richard Kafka (G9)	Pepco Holdings, Inc. – Affiliates	✓									

Commenter		Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
81.	Kris Buchholz	PG&E (1)	✓									
82.	Lauri Jones (G16)	PG&E (2)										
83.	Alicia Daugherty (G10)	PJM		✓								
84.	Al DiCaprio (G10)	PJM		✓								
85.	Glen Boyle (G10)	PJM		✓								
86.	Ray Gross (G10)	PJM		✓								
87.	Mark Kuras (G10)	PJM		✓								
88.	Stephanie Monzon (G10)	PJM		✓								
89.	Tom Bowe (G10)	PJM		✓								
90.	Richard Krajewski (G16)	PNM										
91.	Dick Schwarz (G16)	PNSC										
92.	Valerie Hildebrand (G9)	Potomac Electric Power Company	✓									
93.	Rick Brock (G16)	PSC									✓	
94.	Sarah Lutterodt	Quality Training Systems								✓		
95.	William M. Hardy, Chr.	RCSDT										
96.	Jon Crook (G16)	Sacramento Municipal Utility District										
97.	Jim Fee	Sacramento Municipal Utility District	✓		✓	✓	✓			✓		
98.	Mike Pfeister	Salt River Project	✓		✓		✓	✓				
99.	Mike Gentry	Salt River Project										
100.	Scott Peterson	San Diego Gas & Electric Co.	✓		✓							
101.	Terry Blackwell (G11)	Santee Cooper	✓									
102.	Tom Abrams (G11)	Santee Cooper	✓									
103.	Glenn Stephens (G11)	Santee Cooper	✓									
104.	Rene' Free (G11)	Santee Cooper	✓									
105.	Kristi Boland (G11)	Santee Cooper	✓									
106.	Jim Peterson (G11)	Santee Cooper	✓									
107.	Wayne Ahl (G11)	Santee Cooper	✓									
108.	George Noller (G16)	SCE										
109.	George Noller	SCE	✓									
110.	Charles Wubenna (G3)	Seminole Electric Cooperative	✓									

Commenter		Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
111.	Marc Butts (G13)	Southern Company Services	✓									
112.	Roman Carter (G13)	Southern Company Services	✓									
113.	Jim Busbin (G13)	Southern Company Services	✓									
114.	J. T. Wood (G13)	Southern Company Services	✓									
115.	James Ford (G13)	Southern Company Services					✓					
116.	Fred Rains (G13)	Southern Company Services					✓					
117.	Robert Rhodes (G14)	Southwest Power Pool		✓								
118.	Kyle McMenamin (G14)	SPS	✓		✓		✓					
119.	Stephen Joseph (G3)	Tampa Electric Company	✓									
120.	Robert Eubank (G16)	Tri-State G&T	✓									
121.	Karl Bryan	U.S. Army Corps of Engineers					✓					
122.	Jim Haigh (G6)	WAPA										✓
123.	Howard Rulf	We Energies			✓	✓	✓					
124.	Ken Driggs (G16)	WECC										✓
125.	Eric Langhorst (G16)	WECC										✓
126.	Neal Balu (G6)	WPSR										
127.	Pam Oreschick (G6)	XCEL										✓

I – Indicates that individual comments were submitted in addition to comments submitted as part of a group
G1 – FirstEnergy Corp.
G2 – Florida Power & Light Co. (FPL)
G3 – Florida Reliability Coordinating Council (FRCC)
~~G4 – ISO/RTO Council~~
G5 – Midwest ISO Stakeholders
G6 – MRO Standards Review Committee (MRO SRC)
G7 – NPCC Reliability Standards Committee (NPCC RSC)
G8 – Ohio Valley Electric Corp. (OVEC)
G9 – Pepco Holdings, Inc. – Affiliates
G10 – PJM
G11 – Santee Cooper
G12 – SERC Operations Planning Subcommittee (SERC OPS)
G13 – Southern Company Services, Inc. (Southern Transmission)
G14 – SPP Operating Reliability Working Group (SPP ORWG)
G15 – Tennessee Valley Authority (TVA)
G16 – WECC Operations Training Subcommittee (WECC OTS)

Index to Questions, Comments, and Responses

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

Summary Consideration:

The majority of the commenters did not agree that it is reasonable to at least annually assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability. Several commenters that did not support the requirement explained that the requirement as written is ambiguous, subjective, and not measureable. Several commenters requested clarification on whether the assessment was being conducted for each position or each individual system operator, explaining that it was reasonable to assess positions annually but not individual system operators. Several commenters also suggested that the assessment periodicity should be changed from annually to every two or three years.

The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT also revised R4 (now R2) to clearly state the capability assessment is verified for each System Operator at least once – and within 6 months of any new or modified task on the company-specific reliability-related task list.

Question #1			
Commenter	**Yes**	**No**	**Comment**
Ameren	☑		Yes, although as proposed it is unclear how that objective will be determined.
Response: The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The revised standard (R2) requires verification of each System Operator's capability at least once, and within six months of any new or revised company-specific reliability-related task.			
Florida Power & Light	☑		I agree that it is reasonable to annually assess the training needs for each operator position (R-2) in relationship to the defined company-specific reliability-related tasks (R-1.1). However, the assessment requirement (R-2.1) based on a mis-match between acceptable and actual performance capability seems ambigious and leaves the measurement (M-2) of this requirement subjective and open to interpretation. What is an acceptable means of preforming this assessment? What can we expect from a compliance audit on how they will assess each entity? An acceptable criteria (i.e., Auditors Guide) for evaluating this mis-match needs to be provided.
Response: The SPT SDT agrees that R2 was ambiguous and subjective. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least			

Question #1			
Commenter	**Yes**	**No**	**Comment**
annually and then develop the necessary training to address the updated or new tasks. The SPT SDT updated M1 to support the revised R1, including deleting M2. The SPT SDT also included examples of evidence in the revised Measure. The development of the Auditors Guide is outside the scope of this standard.			
FRCC	☑	☑	FRCC agrees that it is reasonable to annually assess the training needs for each operator position (R-2) in relationship to the defined company-specific reliability-related tasks (R-1.1). However, the assessment requirement (R-2.1) based on a mis-match between acceptable and actual performance capability seems ambiguous and leaves the measurement (M-2) of this requirement subjective and open to interpretation. What is an acceptable means of performing this assessment? What can we expect from a compliance audit on how they will assess each entity? An acceptable criteria (i.e., Auditors Guide) for evaluating this mis-match needs to be provided. FRCC agrees it is reasonable for this assessment to include identification of training to perform new or revised tasks from the company-specific reliability related task list. (R-2.2.)
Response: The SPT SDT agrees that R2 was ambiguous and subjective. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT updated M1 to support the revised R1, including deleting M2. The SPT SDT also included examples of evidence in the revised Measure. The development of the Auditors Guide is outside the scope of this standard.			
LCRA		☑	You are simply asking too much of a large segment of this industry-those utilities that have a small, or nonexistent, training staff. Your goals are lofty, but NERC is completely out of touch with reality if it believes that the huge requirements of this standard can be effectively managed by utlities such as mine that employ a training staff of one.
Response: Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each Requirement.			
NYISO		☑	Monitoring the mismatch between acceptable and actual performance is a continual process. If there is a mismatch in the expectation and performance of reliability-based tasks, such mismatches are addressed immediately based on reliability requirements. Failure to do so is to risk non-compliance with reliability standards.

Question #1			
Commenter	**Yes**	**No**	**Comment**
			To mandate an annual performance evaluations solely for the purposes of training, when continual reliability-based performance evaluations must be conducted to maintain compliance with operational standards, would be redundant. R2 should be deleted as unnecessary, given R1 and the compliance requirements with all other NERC standards. R1 addresses training for existing and "new or revised tasks."
Response: The SPT SDT agrees with your suggestion to delete R2. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update their BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The requirement does not preclude more frequent updates. The SPT SDT revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator at least once – and the revised R2 requires this assessment to be updated within six months of any new or revised company-specific reliability-related task.			
OVEC		☑	How can the training needs of a position be determined based on performance capability of that position? A position has infinite capability while an individual does not have infinite capability. The requirement be revised to determine mis-match of acceptable and actual performance and leave the word capability out of the requirement.
Response: The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT revised R4(now R2) to clearly state the capability assessment, is verified for each System Operator. As revised, the word “capability” is appropriate and has been retained.			
PHI		☑	Comment 1. PHI is not sure what is meant by this requirement. The language is confusing. We understand assessing the training needs of individuals and setting or identifying training requirements for positions but not training needs for positions. Could the drafting team clarify what it meant by this statement? Our concern extends to sub requirement 2.1 as well, because it uses the same confusing language. R2.2 which refers to new tasks or changes to existing tasks for each position is easier to understand. When the tasks for the position change, we should be aware of this and provide a mechanism for ensuring this new content is incorporated into the tasks or responsibilities of the position. Isn't this all that is really needed? Comment 2. Because we are not quite sure what the assessment involves we do not agree that an annual assessment is reasonable.
Response: The SPT SDT agrees with your comment. The SPT SDT combined R1 and R2 to clarify the requirement. R1 requires each entity to update at least annually their BES company-specific reliability-related task list and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4) (now R2) to clearly state that the			

Question #1			
Commenter	**Yes**	**No**	**Comment**
capability assessment, is verified for each System Operator at least once and within six months of a new or modified reliability-related task.			
SMUD		☑	Assessment should be every two years Need to clarify what is being assessed. Is this referring to the Job Task and Analysis or System Operator Training? What tasks should be reviewed? Every task associated with each operating position? BES company specific reliability issues?
Response: The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator at least once and within six months of a new or modified reliability-related task.			
APS		☑	The task list for each position should be reviewed annually for updates, and suggestions for training must be solicited from Leads and Supervisors in order to improve operator performance and keep the program current. But that's not what you said in this statement.
Response: The SPT SDT agrees with your statement. The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its task list at least annually and then develop the necessary training to address the updated or new tasks. The requirement does not prescribe the methodology that must be used to perform the updates.			
Santee Cooper	☑		However, it is not clear from the Requirement or Measure what is necessary to have an acceptable assessment.
Response: The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its task list at least annually and then develop the necessary training to address the updated or new tasks. The requirement does not prescribe the methodology that must be used to perform the assessment. The assessment methodology is determined by the entity, with evidence available for audit purposes. The SPT SDT revised the measures to include examples of evidence.			
Avista		☑	A yearly evaluation for each system operator is a very large burden for any organization. Initial training for system operators should address the required job skill knowledge and tasks required for acceptable performance capability. New job tasks are trained for and implimented as new systems, tools and job functions become necessary. The routine functions of the system operator position are not the issue and EOPS training and evaluation should take care of the rest.

Question #1			
Commenter	**Yes**	**No**	**Comment**
Response: In the revised standard, the responsible entity must assess the capability of each System Operator to perform each assigned reliability-related task at least once – and within six months of any new or revised reliability-related task. The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. More frequent updates are acceptable.			
FirstEnergy	☑		
Entergy (1)	☑	☑	Our response depends on who, what, where, when, and how the authors mean with the statement - "assess the training needs for each system operator position". We agree that each employer should evaluate the performance and training needs of each employee, probably on an annual basis. If that is what the authors meant then we agree and we request the authors make that intent more clear in the standard itself. In addition, we are concerned about who evaluates and determines "acceptable performance" and "actual performance". We suggest the authors make it clear the employer makes that evaluation and determination, not some third party. Throughout this draft standard the authors use the term "System Operator position" to mean a job category and a physical person with no distinction between the two applications. Please make it obvious in each application whether the requirement applies to a job category or a physical person.
Response: The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The assessment is performed by the entity based on its BES company-specific reliability-related task list. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator. The SPT SDT removed the term, “System Operator position” from the revised standard.			
Quality Training Systems			No comment.
TAL		☑	R2.1 does not appear "clear and unambiguous". How can a position have a mis-match between acceptable and actual performance? Is the intent to identify each operators deficiencies for each task every year? Or to identify new tasks (covered in R2.2)?

Question #1			
Commenter	**Yes**	**No**	**Comment**
			If the answer is "to annually identify the mis-match between acceptable and actual performance a specific assesment must be done on every task that remains on the Attachment A (after modification per R1.1.)", then it is overly burdensome and is not required in the verbiage to R4, which only requires a one-time verification. However, it is reasonable to verify that the modified (per R1.1) Generic Task List remains current at least annually.
Response: The SPT SDT agrees that R2 was ambiguous and subjective. The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1.			
Madison G&E		☑	It is unclear what "acceptable" is and what measurements can apply to it when it has not been defined. It is unclear whether this means for each job title or for each person that holds the system operator certificate. If it is for each job title (position), this is reasonable, however if it is each person, then it becomes overly cumbersome. If for each person, this is the responsibility of the registered entity to council and supervise its' operators. Or does it simpley mean that the System Operator position (tasks) in question has been reviewed and they meet the currect position responsibilities? How can this be measureable if there is no change in job tasks from year to year? Perhaps it should read "System Operator job task for each position shall be reviewed upon addition or removal of system operator job tasks".
Response: The SPT SDT agrees that R2 was ambiguous and subjective. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4 (now R2) to clearly state the capability assessment is verified for each System Operator. The revised requirment now requires that the capability be verified at least once, and within six months of any new or revised company-specific reliability-related task.			
Entergy (2)	☑		It is unclear as to whether this is referring to the job category or each individual. This needs to be clarified. One can only infer that this is meant to design the training program for the job category and evaluate it annually for necessary changes. Consider adding a sub-requirement or within this requirement to indicate that measurable and observable criteria must also be developed along with each task identified (since "measureable and observable criteria" is a Measure of this Requirement).
Response: The SPT SDT agrees that R2 was ambiguous and subjective. The SPT SDT combined R1 and R2 to clarify the			

Question #1			
Commenter	**Yes**	**No**	**Comment**
requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised the R1 and R4 (now R2) to clearly state that the capability assessment is verified for each System Operator. The SPT SDT revised the measures to include examples of evidence.			
ERCOT	☑	☑	Should read "mismatch between the previoulsy developed task list and current and/or new task". "Performance capabilities" relates more to personnel that it does to positions.
Response: The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4 to clearly state that the capability assessment is verified for each System Operator.			
Southern	☑		
Allegheny Power		☑	There are a number of concerns with assessing the training needs of each system operator position in this standard. First, the function of assessing the performance of system operators should be covered by a separate Standard. Combining Training Requirements with Performance Standards causes confusion and creates a very voluminous standard. The purpose of three of the four requirements is assessment rather than training. Second, althought doing an annual assessment of each operators performance is a desirable goal, doing a measurement of each operators performance with each company specific BES reliablity-related task is over-burdensome if even possible.
Response: The function of assessing the performance of system operators was included in the approved SAR for this standard. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each applicable requirement. The assessment can be performed during training or in real-time. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator.			
AEP	☑		R2.1 - Yes, as long as the interpretation and intent is truly “capability”, but not for actual performance of every reliability task for which the position is responsible. Out of the possible 374 reliability tasks (Attachment A to the standard), some tasks may be rarely done, or may be done only during emergency or emergency training, such as annual restoration/black-start drills and simulation excersises. Some emergency tasks can be actually performed to gage performance, whereas other emergency tasks are more of a table-top simulation without actually performing the task. Operator performance may be based on satisfactorily completing the annual training to gain knowledge to know how, where and when to perform the task(s), foster acceptable “capability”, but, not actually require performing the task(s) to achieve actual results. Based on this criteria, the standard’s measurment and audit for R2.1 must allow for the “training and knowledge

Question #1			
Commenter	**Yes**	**No**	**Comment**
			base for task performance", to be the measure or assessment of the "performance capability" of such emergency tasks. R2.1 could possibly be reworded as follows or in some other fashion to help ensure auditing procedures follow the intent (intent explained in the "Background Information" preceding these comment questions): ---- The assessment shall include identification of mismatches between acceptable and actual performance capability, and/or the identification of mismatches between the acceptable and actual knowledge base for performance capability, that need to be addressed for future training. -----
Response: The SPT SDT agrees that it is "capability" not actual performance. The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1. The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator. R2 (previously R4) allows for the training and knowledge base for task performance. The SPT SDT agrees that you can demonstrate the capability to perform the tasks in a training environment or during real-time operations.			
ATC		☑	ATC believes that the annual analysis should be on the position of system operators not for each system operator.
Response: The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator. R2 (previously R4) allows for the training and knowledge base for task performance.			
BCTC		☑	Requirement 1 in this draft of the standard requires a full blown job task analysis be completed for each company and to maintain the JTA. We cannot support this requirement at this time. The requirement also requires all training outside of NERC CE training to follow the SAT. We cannot support this beyond the NERC CE requirements at this time or to develop it over the next 36 months. We do not have the staff to complete this beyond NERC CE requirements at this time and believe we should be focusing on NERC CE requirements until we can comfortably follow the SAT for CE first. Requirement 2: We cannot support R2 if the assessment of the System Operator position goes beyond the NERC CE program requirements to meet and maintain NERC Certification.
Response: Requirement 1 does not require a full blown job task analysis. It also does does not require the use of SAT for all training outside of NERC CE training. In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs".			

Question #1			
Commenter	**Yes**	**No**	**Comment**
The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each applicable requirement. The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The standard does not limit the use of nor does it require an entity use the NERC Continuing Education (CE) Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific reliability-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH.			
CAISO		☑	The CAISO agrees that an operator needs-assessment be done at least annually, the IRC supports continuous assessment of operator training needs. That said, the CAISO does not agree that a prescriptive standardized process is desirable or feasible. Performance evaluation is a corporate responsibility not a NERC standard. The CAISO would propose that this standard be refocused from a standard that requires a set annual needs-assessment, to a standard mandating a given number of hours of continuous training through NERC-accredited Training programs. Please refer to our comments in response to Question 11. Discussion: An operator training needs-assessment is not a requirement that can be developed easily. Having an industry-wide competency level lends itself to debates, possibly without an agreement, particularly given there is already an operator certification examination. A standard that leaves definition of competency to be developed by the individual responsible entities would subject to requirement to a "fill-in-the-blank" category, which FERC has stated must be eliminated. A fixed annual needs-assessment may devalue a continuous needs-assessment program. A fixed annual program by definition focuses on a one-time evaluation. With such fixed programs, organizations and operators may be more focused on performing and passing a given evaluation, then focusing on a comprehensive evaluation of individual needs - an evaluation that involves subjective analysis such as interpersonal skills under stress evaluation.

Question #1			
Commenter	**Yes**	**No**	**Comment**
			A fixed annual needs-assessment may be useful from an auditor perspective, but it does not reflect the varied undefined times that training occurs. To identify a 'need" an auditable test evaluation would require a standardized scoring system. Does a score of X% indicate a need for training? Indeed, how would a test identify in which area the training need exists? Requirement 2 imposes a subjective obligation of "acceptable" capability. R2.1 mandates that "mismatches" be identified. However, the draft standard does not identify a mismatch. Today, training is provided for all changes that a corporate entity believes needs training. Similarly, corporate entities may not even provide training on new tasks that are self-explanatory. R2.2 mandates the compliance entity identify which tasks fall in which category. That subjectivity is reasonable but it is not what one would consider an industry standard.

Response: The function of assessing the performance of system operators was included in the approved SAR for this standard. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each applicable requirement. The assessment can be performed during training or in real-time. The SPT SDT does not believe the suggested “refocus” is within the scope of the approved SAR.

The NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPTSDT believes there is nothing in this standard that conflicts with the CE Program requirements. The standard does not limit the use of nor does it require an entity use the NERC CE Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH.

The SPT SDT does not agree that the standard should include training time requirements for training on the BES reliailbity-related tasks. NERC’s response to Blackout Recommendation 6A recommended 5 days of emergency operations training, which was subsequently clarified to mean 32-hours. The SPT SDT is not aware of the justification that was used for selecting 32 hours.

In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that “uses the Systematic Approach to Training (SAT) methodology in its development of new training programs”. The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks.

The SPT SDT has prepared a Reference Document for this standard that provides several SAT resources. The Implementation Plan uses a phased-in approach to allow sufficient time to aquire training on using a systematic approach to developing

Question #1			
Commenter	**Yes**	**No**	**Comment**
training. The SPT SDT agrees that R2 was ambiguous and subjective. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks.			
CenterPoint		☑	R2 is confusing. Assessing the training requirements of a system operator position is different than assessing the training needs of an individual system operator. This requirement should be reworded to clarify what assessment is being required. A definition of the term "system operator position" should be added to the Glossary of Terms. Identification of company-specific system operator position tasks may be reasonable on an annual basis or whenever tasks are added or deleted; however, assessment of individual system operator training needs should be over a three year period to align with existing NERC System Operator Certification and Continuing Education Programs.
Response: The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator. The standard does not limit the use of nor does it require an entity use the NERC Continuing Education (CE) Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH.			
NIPSCO		☑	The caveat here is that before the assessment takes place, the requirements of each specific operator need to be developed. This process commences with the job tasks for each position being identified and the standards being developed from the task lists. It is difficult to determine the mis-match between acceptable and actual performance when the standard does not exist. The only standards that we currently have are that the operators must complete their NERC certification, and each operator is required to obtain 32 EOP hours of annaul training and obtain up to 200 hours of CEH to maintain their certification. Once we have completed the initial qualification of all the system operators, it would make more sense to tie the assessment to NERC recertification so that the assessment is done every three years.
Response: The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the			

Question #1			
Commenter	**Yes**	**No**	**Comment**
updated or new tasks. The standard does not limit the use of nor does it require an entity use the NERC Continuing Education (CE) Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH.			
NPCC RCS		☑	Please define how to constitute acceptable and actual performance cabability and clarify the requirement. How will industry identify "mismatch". Is this requalification of system operators. The requirement doesn't seem measurable and crisp to audit for compliance. This requirement has a "fill in the blank" characteristic.
Response: The SPT SDT agrees that R2 was ambiguous and subjective. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT revised the Measures to include examples of evidence.			
PG&E (1)			The intent of this section is acceptable, however, the wording assumes a level of performance that may not be present. An assessment is made to identify gaps between the knowledge or skill level of the worker and the requirements of the job. The requirements of the job are identified as the past requirements and new requirements.
Response: The SPT SDT agrees that R2 is ambiguous and subjective. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks.			
PG&E (2)		☑	It is unclear as to whether the assessment is for the position or each operator in the position. The Standard should reflect the training needs, in relation to the defined company specific reliability related tasks, for each position and would then be updated as needed. If there were no changes to that position in regards to the defined company specific reliability related tasks in the previous year, the position would be reviewed and updated every three years. It is also unclear in R.2.1 as to the identification of mis-matches between acceptable and actual performance capability. What is acceptable to one company may not be to another and therefore is left open to interpretation in the measurement, M.2. How would this be assessed in either the readiness evaluation or a compliance audit?
Response: The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT believes an annual review of the task list is reasonable.			

Question #1			
Commenter	**Yes**	**No**	**Comment**
The SPT SDT revised the Measures to include examples of evidence.			
PJM		☑	PJM not only agrees that an operator needs-assessment be done at least annually, PJM supports continuous assessment of operator training needs. That said, PJM does not agree that a prescriptive standardized process is desirable or feasible. Performance evaluation is a corporate responsibility not a NERC standard. PJM proposes that this standard be refocused from a standard that requires a set annual needs-assessment, to a standard mandating a given number of hours of continuous training through NERC-accredited Training programs. Please refer to our comments in response to Question 11. Discussion: An operator training needs-assessment is not a requirement that can be developed easily. Having an industry-wide competency level lends itself to debates, possibly without an agreement, particularly given there is already an operator certification examination. A standard that leaves definition of competency to be developed by the individual responsible entities would subject to requirement to a "fill-in-the-blank" category, which FERC has stated must be eliminated. A fixed annual needs-assessment may devalue a continuous needs-assessment program. A fixed annual program by definition focuses on a one-time evaluation. With such fixed programs, organizations and operators may be more focused on performing and passing a given evaluation, then focusing on a comprehensive evaluation of individual needs - an evaluation that involves subjective analysis such as interpersonal skills under stress evaluation. A fixed annual needs-assessment may be useful from an auditor perspective, but it does not reflect the varied undefined times that training occurs. To identify a 'need" an auditable test evaluation would require a standardized scoring system. Does a score of X% indicate a need for training? Indeed how would a test identify in which area is the training need exists? Requirement 2 imposes a subjective obligation of "acceptable" capability. R2.1 mandates that "mismatches" be identified. However, the draft standard does not identify a mismatch. Today, training is provided for all changes that a corporate entity believes needs

Question #1			
Commenter	**Yes**	**No**	**Comment**
			training. Similarly, corporate entities may not even provide training on new tasks that are self-explanatory. R2.2 mandates the compliance entity identify which tasks fall in which category. That subjectivity is reasonable but it is not what one would consider an industry standard.
Response: The function of assessing the performance of system operators was included in the approved SAR for this standard. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. The assessment can be performed during training or in real-time. The SPT SDT does not believe the suggested "refocus" is within the scope of the approved SAR. The NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPTSDT believes there is nothing in this standard that conflicts with the CE Program requirements. The standard does not limit the use of nor does it require an entity use the NERC CE Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH. The SPT SDT does not agree that the standard should include training time requirements for training on the BES reliailbity-related tasks. NERC's response to Blackout Recommendation 6A recommended 5 days of emergency operations training, which was subsequently clarified to mean 32-hours. The SPT SDT is not aware of the justification that was used for selecting 32 hours. In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each requirement. The SPT SDT has prepared a reference document that provides several SAT resources. The Implementation Plan uses a phased-in approach to allow sufficient time to aquire training on using a systematic approach to developing training. The SPT SDT agrees that R2 is ambiguous and subjective. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update their BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks.			
SRP	☑		
SDG&E			
We Energies	☑		
Garland		☑	I believe that the training of system operators needs to be assessed, but Garland Power

Question #1			
Commenter	**Yes**	**No**	**Comment**
			& Light is a small utility that has a training staff of one personnel that has many other duties as well to perform. The requirement is completely out of scope for resaonability. This would place a huge budget burden on small utilities that are managed by City Councils.
Response: The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator at least one time and within six months of any new or revised task. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each requirement.			
HQT		☑	Please define how to constitute acceptable and actual performance cabability and clarify the requirement. How will industry identify "mismatch". Is this requalification of system operators. The requirement doesn't seem measurable and crisp to audit for compliance. This requirement has a "fill in the blank" characteristic.
Response: The SPT SDT agrees that R2 is ambiguous and subjective. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update their task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator at least one time and within six months of any new or revised task.			
IESO	☑	☑	We agree with the annual assessment of the training need. However, we feel the standard needs to have a requirement on the competency level (defined industry-wide or by individual responsible entities) in order to identify the mismatch between acceptable and actual performance capability. That said, this is not a requirement that can be developed easily. Having an industry-wide competency level lends itself to debates, possibly without an agreement, and given there is already a certification examination. Leaving it to be developed by the individual responsible entities would subject the requirement to a "fill-in-the-blank" category, which is to be eliminated. A simpler approach would be to require responsible entities to assess training needs on an annual basis, without specifying how, and develop an effective training program with an aim to enable operating personnel achieve the required skillset. In this case, the requirement will focus on the process (annually assessment) and the what (the training program), not the how (measuring the mismatch).
Response: The SPT SDT believes the suggested requirement on the competency level is outside the scope of the approved			

Question #1			
Commenter	**Yes**	**No**	**Comment**
SAR. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The revised standard (R2) requires verification of each System Operator's capability at least once, and within six months of any new or revised company-specific reliability-related task.			
ISO New England		☑	Please define how to constitute acceptable and actual performance cabability and clarify the requirement. How will industry identify "mismatch". Is this requalification of system operators? The requirement doesn't seem measurable and crisp to audit for compliance.
Response: The SPT SDT agrees that R2 was ambiguous and subjective. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The revised standard (R2) requires verification of each System Operator's capability at least once, and within six months of any new or revised company-specific reliability-related task. The SPT SDT revised the measures to include examples of evidence.			
Manitoba Hydro	☑	☑	Not clear on what system operator position means. In theory I agree but from a practical purpose this is not an easy task, especially for non-routine or emergency tasks without the aid of a simulator. While reference is made to the 737 pilot, simulators for the aircraft industry are far more developed than those for electrical systems. Walking through restoration plans and emergency procedures is one thing but it is quite another thing to put into practice. Is it being suggested that a comparison of acceptable to actual performance be made from the task on the BES task list.
Response: The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT revised the measures to include examples of evidence.			
MISO Stakeholders		☑	We agree that it should be a requirement to annually assess and update a training plan for each system operator position and design training around these assessments. However, the choice of words is poor and we can't support a requirement that implies it is acceptable for a System Operator to fill a position in which he does not meet an acceptable performance level.

Question #1			
Commenter	**Yes**	**No**	**Comment**
Response: The SPT SDT agrees that R2 was ambiguous. The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The revised standard (R2) requires verification of each System Operator's capability at least once, and within six months of any new or revised company-specific reliability-related task.			
MRO	☑	☑	There is a potential ambiguity that "each system operator position" could be interpreted as meaning "each person who performs each operator position". This is because of the use of the words "actual performance capability" which seems to refer to a person not a position. The MRO assumes what is meant is each position not each person. Please confirm. Perhaps wording could be clarified by inserting "(not person)" after the word "position". Suggest replacing "acceptable and actual performance capability" in R2 with "required and existing performance capability". The MRO agrees with R2 in concept but in practice this is not an easy task, especially for non-routine or emergency tasks which may be very difficult to simulate in training. While reference is made to the 737 pilot, simulators for the aircraft industry are far more developed than those for electrical systems. Walking through restoration plans and emergency procedures is one thing but it is quite another thing to in practice.
Response: The SPT SDT agrees that R2 was ambiguous and subjective. The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator.			
SPP ORWG	☑		There was much confusion within our group as to whether this requirement is directed toward the position of System Operator or to the individual operator. Although we struggled with finding words to clarify the point, could the SDT take this back to the drawing board and attempt to make the distinction clearer?
Response: The SPT SDT agrees that R2 was ambiguous. The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator.			
WECC OTS		☑	WECC OTS is unclear as to whether the assessment is for the position or each operator in the position. The Standard should reflect the training needs, in relation to the defined company specific reliability related tasks, for each position and would then be updated as needed. If there were no changes to that position in regards to the defined company

Question #1			
Commenter	**Yes**	**No**	**Comment**
			specific reliability related tasks in the previous year, the position would be reviewed and updated every three years. It is also unclear in R.2.1 as to the identification of mis-matches between acceptable and actual performance capability. What is acceptable to one company may not be to another and therefore is left open to interpretation in the measurement, M.2. How would this be assessed in either the readiness evaluation or a compliance audit?
Response: The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT believes an annual review of the task list is reasonable. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is performed for each System Operator. The SPT SDT revised the Measures to include examples of evidence.			

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

Summary Consideration:

Most commenters supported including this requirement in the System Personnel Training standard and eliminating any duplication of training requirements in the System Restoration and Blackstart Standard. Some commenters suggested that all training requirements should be removed from other standards and included in the System Personnel Training standard. One commenter suggested removing the requirement from both standards.

The SPT SDT has and will continue to work with the System Restoration and Blackstart SDT to eliminate any duplication of the training requirements in the two standards. The SPT SDT will also suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.

Question #2	
Commenter	**Comment**
Ameren	Remove from SR&B include only in Training
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
Florida Power & Light	I would like to see this requirement be removed from the System Restoration and Blackstart standards and to be placed only in the Personnel training standard.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
FRCC	FRCC recommends this requirement be removed from the System Restoration and Blackstart standard and be placed only in the Personnel training standard.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
LCRA	It should be contained in the Continuing Education Program.
Response: The NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all	

Question #2	
Commenter	**Comment**
reliability-related training, not just NERC CE approved activities. The SPTSDT believes there is nothing in this standard that conflicts with the CE Program requirements. The standard does not limit the use of nor does it require an entity use the NERC CE Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH.	
NYISO	This requirement that has no basis in a systematic approach to training, it should be removed from both locations. Thirty two hours is an indefensible, arbitrary, and capricious number. Please explain the justification for selecting 32 hours rather than 64, or 16?
Response: NERC's response to Blackout Recommendation 6A recommended 5 days of emergency operations training, which was subsequently clarified to mean 32-hours. The SPT SDT is not aware of the justification that was used for selecting 32 hours.	
OVEC	The training requirements for system operators should all be in the same standard, namely the System Personnel Training Standard.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
PHI	The requirement to provide 32 hours of EOP training annually belongs in the Personnel Training Standard because as listed in Attachment B, it encompasses a slightly broader set of topics than Restoration and Blackstart. Other standards, in addition to the Blackstart standard (i.e. Cyber Security and BUCC) have also identified training requirements. PHI believes any required or mandated training deriving from another standard should be specifically identified in the Personnel Training Standard with a cross reference to the applicable standard for the details of the requirement. (i.e. personnel, topics, length, frequency of the training etc.) and whether it may be included in an individual's required 32 hours of EOP or would be in addition to that.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
SMUD	System Personnel Training Standard Only
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	

Question #2	
Commenter	**Comment**
APS	The System Personnel Training Standard only.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
Santee Cooper	All training requirements should be listed in this standard.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
Avista	The trend seems to be to place some kind of training requirement in everything (FERC NOPRS, NERC Standards and Regional Standards.) My opinion is that training requirements should all be in one place and I would prefer that to be PER-005.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
Entergy (1)	We suggest the training requirement R3 be in the training standard.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
FirstEnergy	FE believes it is appropriate to have this requirement reside within the PER-005 standard and that the requirement be removed from the proposed standards that are being developed within the Project 2006-03 work effort. It is our position that all requirements related to personnel training should reside within the PER suite of standards.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
Quality Training Systems	No comment.
TAL	Not only should this requirement should be in the System personnel Training Standard, a checklist should be made so that ALL training requirements are included in this standard. One example is the annual training on Cyber Security (CIP).

Question #2	
Commenter	**Comment**
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
Madison G&E	a) This requirement needs to be in "Personnel Performance, Training, and Qualifications" standard. In NERC's Reliability Standards Development Plan dated Nov 30, 2006, the Work Plan objective to support its Goal is to "Reorganize the standards more logically based on topic and remove redundancies". All NERC Training Requirements need to be within the Personnel Performance, Training, and Qualifications Standard's section. b) All required training that a NERC Standard directs any entity to do should be placed in its own NERC (training) Standard. The NERC Standard category "Personnel Performance, Training, and Qualifications" is established for this purpose. As stated in FERC Order 693, para. 1335, training requirements would not be in one "all inclusive standard". A better fit is to have many individual standards (that specify training requirements listed in Personnel Performance, Training, and Qualifications section of the NERC Standards) under the heading of "Personnel Performance, Training, and Qualifications". If a training requirement is imbedded in a non-"Personnel Performance, Training, and Qualifications" standard, it will lead to possible shortfalls from an entity. c) This requirement should be in the Personnel Performance, Training, and Qualifications Standard, because it applies to training not specifically related to System Restoration or Blackstart (e.g. loss of primary control center, energy emergencies, etc.). d) In R3, it is stated "... 32 hours annually of emergency AND system restoration training." Does this mean 32 hours of both or a total of 32 hours? Since system restoration is a subset of Emergency Opertions Topics (attachment B), then the SDT should delete system restoration from R3. Either way the SDT needs to state what the proposed requirement will be.
Response: a, b, c) The NERC Reliability Standards Development Work Plan does not include any Personnel Performance Training and Qualification Standard and there is no reference to such a document. Please clarify the source of this reference. d) The SPT SDT clarified the language in R3, explaining the emergency operations training includes system restoration training.	
Entergy (2)	We recommend that the requirement remain in the training standard and be removed from the Blackstart Standard project. The training standard is the appropriate place for consolidating and delineating any training requirements.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to	

Question #2	
Commenter	**Comment**
eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
ERCOT	1) Should go in PER-005. 2) However, it is recommended that the 32 hour requirement be remove completely because the CEH program captures the intent of this requirement. Furthermore, the 32 hours of emergency training is tracked on a different schedule than CEH requirements and creates an additional and confusing set of record keeping processes. Record keeping can be simplified without reducing the level and quality of training with the additional benefit of removing the audit liability created by the need to track each operator's records on a different schedule.
Response: 1) The SPT SDT will work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards.. 2) The NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPTSDT believes there is nothing in this standard that conflicts with the CE Program requirements. The standard does not limit the use of nor does it require an entity use the NERC CE Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH.	
Southern	From a organizational perspective, it would be best to include emergency and restoration training in the System Personnel Training standard. This way, all training is in a central location and would prevent system operator trainers from searching throughout the approximately 117 standards to find the particular standards related to training.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
Allegheny Power	The 32 hours of emergency operations and system restoratio training should be located in the System Personnel Training Standard.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
AEP	This requirement definitely should only be in one standard. It is presently in the PER-002 standard as a 5-day training requirement, and therefore should be in the PER-005, since PER-002 is being retired. It would also help in audits of the standard, to have the training record auditing done with the PER training standard records rather than the EOP standards.

Question #2	
Commenter	**Comment**
	The new EOP-005-2 standard draft 1 does not directly refer to the 32 hours or 5 days of emergency training. R9 of this EOP-005-2 draft does refer to the emergency operating topics, but does not specify annual training or the 5 day (32 hour) requirement, as does the present PER-002-0 standard.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
ATC	It's our position that all training related requirements should be in PER standards. The SDT should review all NERC standards and move other training specific requirements into this standard.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
BCTC	All Reliability related training required in a standard should be listed in the PER Standards. There should only be one place to see where Reliability required training to meet standards are listed.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
CAISO	The CAISO would prefer that all training comments are contained within the training standards.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
CenterPoint	The requirement should be in the System Personnel Training Standard. Further, any training requirements should be grouped into training standards. When necessary, other standards should reference the appropriate training standard for any specific requirements.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
NIPSCO	The 32 hour requirement is not currently included in Project 2006-03. This information should be included in the training document. The System Restoration and Blackstart standard should reference the training document when talking about frequency of training and content, that way the training

Question #2	
Commenter	**Comment**
	document would contain all pertinent training data including frequency of testing and testing requirements.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
NPCC RCS	The 32 hour emergency training requirement belongs in the personnel training standard. Please provide the basis for the 32 hour requirement.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards. NERC's response to Blackout Recommendation 6A recommended 5 days of emergency operations training, which was subsequently clarified to mean 32-hours. The SPT SDT is not aware of the justification that was used for selecting 32 hours.	
PG&E (1)	If the number of hours of training are going to be in either standard, it should be in PER-005 only; however, the training areas is what should be specified and the number of hours left to the responsible party.
Response: The SPT SDT will work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. NERC's response to Blackout Recommendation 6A recommended 5 days of emergency operations training, which was subsequently clarified to mean 32-hours. The SPT SDT is not aware of the justification that was used for selecting 32 hours.	
PG&E (2)	The NERC System Personnel Training Standards as the repository for all training identified in the standards and therefore recommends this requirement not be duplicated in the System Restoration and Blackstart standard.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
PJM	It is not important which standard includes the subject requirement. Either way, the same entities will be mandated to comply. What is important is that one or the other be removed. If required to choose, PJM would suggest including all requirements in the Training standards.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements	

Question #2	
Commenter	**Comment**
into the PER standards.	
SRP	This requirement should be in a PER standard. Ideally any requirement for training should be in a PER standard.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
SDG&E	The 32 hour training requirement should be in the System Restoration plan. PER-005 is really focused on what should be in a training program.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
We Energies	Training requirements should only be in training standards.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
Garland	It should be contained in the System Restoration and Blackstart standard.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
HQT	The 32 hour emergency training requirement belongs in the Personnel Training Standard. Please provide the basis for the 32 hour requirement.
Response: The SPT SDT will work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. NERC's response to Blackout Recommendation 6A recommended 5 days of emergency operations training, which was subsequently clarified to mean 32-hours. The SPT SDT is not aware of the justification that was used for selecting 32 hours.	
IESO	Training requirements should always be covered by one standard. This avoids duplication of requirements and lends clarity to the scope of the standard under consideration. On this basis, we feel that the 32 hours emergency training requirement should be covered in this standard since this standard deals with all aspects of training. Further, the standard on System Restoration and Blackstart has a narrower scope as compared to PER-005 - Restoration and Blackstart scenarios only - and may not cover all the emergency scenarios.

Question #2	
Commenter	**Comment**
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
ISO New England	The 32 hour emergency training requirement belongs in the personnel training standard. Please provide the basis for the 32 hour requirement. Is this in addition to the NERC Certification requirements? How does this Standard fit into the existing NERC Certification requirements?
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards. NERC's response to Blackout Recommendation 6A recommended 5 days of emergency operations training, which was subsequently clarified to mean 32-hours. The SPT SDT is not aware of the justification that was used for selecting 32 hours. There is no NERC re-certification requirement for emergency training. If the 32 hours meet the requirements of the CE program, the hours can meet both requirements. The NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPTSDT believes there is nothing in this standard that conflicts with the CE Program requirements. The standard does not limit the use of nor does it require an entity use the NERC CE Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH.	
Manitoba Hydro	Should be part of the system personnel training standard. Anything related to training should be found in these standards.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
MISO Stakeholders	We don't think it matters which standard as long as it is in only one. It should be removed from the standard that is further behind in the process to minimize any schedule impacts. In relation to this annual training requirement, we recommend striking the second paragraph under section 2.4.3 of the Severe violation level. The first paragraph should cover all situations since 32 hours of training were provided or they weren't. If the 32 hours have not been met, the annual requirement has not been met.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to	

Question #2	
Commenter	**Comment**
eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards. The SPT SDT agrees with your statement on the VSLs and has revised R3 VSLs consistent with your suggestion.	
MRO	Should be part of the system personnel training standard. Anything related to training should be found in these standards. Might be helpful to have a reference in the blackstart standard like "see personnel training standard for specific training requirements".
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
SPP ORWG	The 32-hour annual training requirement for emergency operations and system restoration belongs in PER-005-2. All training requirements should be consolidated within the System Personnel standards.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	
WECC OTS	WECC OTS views the NERC System Personnel Training Standards as the repository for all training identified in the standards and therefore recommends this requirement not be duplicated in the System Restoration and Blackstart standard.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008 – 2010 that consolidates all training-related requirements into the PER standards.	

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

Summary Consideration:

Most commenters did not agree that there should a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned tasks that is on its list of BES company-specific reliability-related tasks. Several commenters that did not support the requirement indicated it would be burdensome to perform this assessment annually, which is not the intent of the requirement. Several commenters requested confirmation that the verification is a one-time assessment to determine if the operator can perform each assigned task and the verification can be performed over time. Several commenters suggested that the standard should include a methodology to execute and measure the requirement.

The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the operator's assigned task list is modified.

Question #3			
Commenter	**Yes**	**No**	**Comment**
Ameren	☑	☑	Yes an assessment is important. No, the standard as written is not defined with time parameters and is unachievable.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the operator's assigned task list is modified.			
Florida Power & Light		☑	The standard as written, does not define a time frame for the assessment (R-4). I feel that this assessment is not achievable and is unrealistic due to the time burden involved. Clarification needs to be given as to the time frame when this evaluation is to be given.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the operator's assigned task list is modified.			
FRCC		☑	The standard as written, does not define a time frame for the assessment (R-4). The FRCC feels that this assessment is not achievable and is unrealistic due to the time burden involved. Clarification needs to be given as to the time frame when this evaluation is to be given.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the operator's assigned task list is modified.			
LCRA		☑	See #1 above. It is simply too much for smaller entities to handle. Has anyone in the

Question #3			
Commenter	**Yes**	**No**	**Comment**
			group that developed this standard polled the industry to see what kind of resources are available to support it? If not, then you have no idea of whether or not it is feasible.
Response: Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. The request for comments on the SAR, which was approved, and draft versions of the standard are intended to collect stakeholder's ability to support the standard.			
NYISO		☑	Orientation training is provided in a systematic approach to assume the task. Reinforcement training of the key reliability tasks is an ongoing aspect of a systematic approach to training. Addressing gaps between expectations and actual performance is driven by reliability requirements, not training program structure. Annual testing of all staff, on all possible tasks, is a waste of training effort and operator time. R4 should be deleted as unnecessary, given R1 and the compliance requirements with all other NERC standards.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the operator's assigned task list is modified.			
OVEC		☑	This requirement is not necessary for several reasons. The ability to only perform individual tasks does not give a good indication of an operator's performance to manage and execute reliable operation of the Bulk Electric System during critical times when multiple tasks must be performed in rapid succession…working under pressure. The performance of an operator in a pressure situation would provide a better measure of an operator's performance rather than assessing capabilities to execute individual tasks. With only assessing individual tasks, the big picture of an operator's performance to reliably operate the Bulk Electric System is not adequately determined. Also, the performance of individual system operators is already evaluated through a performance review process and training evaluations are a part of that process. In order to demonstrate compliance with this requirement, would these performance reviews need to be made availabe to compliance auditors? Allowing auditors to view the performance reviews would seem to violate privacy and confidentiality laws and would necessitate the involvement of the human resources department in the compliance process. If the human resources department were not involved in the process then a

Question #3			
Commenter	**Yes**	**No**	**Comment**
			separate process would need to be duplicated in a "sanitized" manner for inspection by the compliance auditors. This duplication would be redundant and inefficient.
Response: The requirement of assessing the performance of system operators was included in the approved SAR for this standard. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. The assessment can be performed during training or in real-time. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the operator's assigned task list is modified. The SPT SDT revised the Measure for this Requirement to include the types of evidence that could be used to meet the Requirement. Performance reviews are not included.			
PHI	☑		The requirement does not specify a time period. As stated, this would be a one-time check to determine that each operator can perform the assigned tasks and PHI would expect that we could complete that assessment over a period of time. If that is the case PHI agrees.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified.			
SMUD	☑		We assume this is a one time evaluation of operating personnel on each assigned task that is on its list of company-specific reliability-related tasks. Subsequent evaluations should be at the discretion of the system operator's management.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified.			
APS		☑	Experienced NERC-certified personnel may be hired as operators, and some NERC-certified incumbents have 25-30 years experience. It would certainly be a waste of resources to assess these personnel's knowledge, skill, and attitude and then send these personnel through weeks of Initial Training and the myriad of exams involved. There should be a "grand-fathering" provision for experienced personnel, such as a exemption based on observation of job performance.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified.			

Question #3			
Commenter	**Yes**	**No**	**Comment**
The SPT SDT does not agree that there should be a grandfathering provision for experienced personnel. Each System Operator needs to demonstate they can perform each company-specific reliaiblity-related task. NERC Certification and years of experience do not necessarily ensure the System Operator is capable of performing company-specific reliability-related tasks.			
Santee Cooper	☑		Yes, assuming this is a one-time verification until the reliability related tasks change.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified.			
Avista		☑	Again, a huge burden on every organization. It is not the routine operating tasks that cause system outages. System Operators need to be evaluated on their knowledge of tasks that are required when the BES is operating with little or no margins, either voltage, reactive or thermal. System operators also need to be tested to determine if they can recognize when their system is at it's operating limits, not the periods when adaquate reserves more than compensate for sloppy operating!
Response: Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. Note that the SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the operator's assigned task list is modified.			
FirstEnergy	☑		We agree that there should be some assessment of the effectiveness related to knowledge and skills learned during training being transferred to work place performance. However, upon reviewing R4, the measures associated with R4, and the VSL aimed at R4, it is unclear what the standard's expectations are related to this requirement.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified. The SPT SDT also revised the measure for this requirement to include examples of evidence. The SPT SDT has revised the Measures to include examples of the evidence that can be used. The SPT SDT has also revised the VSLs for this requirement.			
Entergy (1)	☑	☑	Our response depend on who, what, where, when, and how the authors mean with the statement - "assess the training needs for each system operator position". We agree that each employer should evaluate the performance and training needs of each employee, probably on an annual basis. If that is what the authors meant then we

Question #3			
Commenter	**Yes**	**No**	**Comment**
			agree and we request the authors make that intent more clear in the standard itself. In addition, we are concerned about who evaluates and determines "acceptable performance" and "actual performance". We suggest the authors make it clear the employer makes that evaluation and determination, not some third party.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified. The responsible entity performs the assessment.			
Quality Training Systems			No comment.
TAL		☑	The verification of satisfactory performance of "each assigned task" is overly burdensome. Although, since this is a one-time verification only per R4, I can live with it. If I have to verify each task for each operator every year, it is way overboard. Who determines if my verification is adequate? Is this my call, the RA team or the Compliance Audit? If I only have to satisfy myself, it is okay.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified. The responsible entity performs the assessment.			
Madison G&E		☑	a) It is unclear whether this means for each job title or for each person that holds the system operator certificate. If it is for each job title (position), this is reasonable, however if it is each person, then it becomes overly cumbersome. Routine tasks are currently monitored by the System Operator's Supervisor as part of the Supervisor's on-going evaluation of the System Operator's job performance. Job performance evaluation is a normal part of supervision and is utilized to determine compensation levels, retain quality personnel and administer the promotion process. Requiring a formal test or evaluation of tasks performed on a routine basis will trivialize the assessment process and encourage rubber-stamp approval to sign off on each task. System Operators should only be required to formally demonstrate competence in performing non-routine tasks which are performed on an infrequent basis. Or does it simply mean that the System Operator position (tasks) in question has been reviewed and they meet the correct position responsibilities? b) As a measurable requirement, this becomes too cumbersome (if for each system

Question #3			
Commenter	**Yes**	**No**	**Comment**
			operator). As a business practice, it is good, but some of the tasks (i.e. communication with the RC) are performed regularly and to have to document each task for each operator would be overly burdensome.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. The SPT SDT also revised the measure for this requirement to include examples of evidence.			
Entergy (2)	☑		Is this meant to be a one time assessment? If so, then we agree since attempting to do this every year would be unreasonable. If it is mean to be recurring, then consider adding the requirement of a periodic assessment of a sample of tasks on an ongoing basis within the entity's own training program.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified.			
ERCOT	☑	☑	It should be more specific in that there should be a task list for each position and not one list that covers multiple positions. Example: Companies with specialize positions should have a task list for each position. Auditors will apply a broad based task list to specialized positions and create findings stating that each position should be able to perform all tasks on the general list. Also, the Standard should clearly state that this is a one-time assessment for each system operator and their respective position. It should take into account prior work history, training, qualifications and certifications from previous employers when assessments are made.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified. The responsible entity shall determine the assessment methodology. The SPT SDT does not agree that there should be a grandfathering provision for experienced personnel. Each System Operator needs to demonstate they can perform each company-specific reliaiblity-related task. NERC Certification and years of experience do not necessarily ensure the System Operator is capable of performing BES company-specific reliability-related tasks.			
Southern	☑		

Question #3			
Commenter	**Yes**	**No**	**Comment**
Allegheny Power		☑	As stated in the comments provided to question 1, this is a desirable goal. However, there are several issues that make the described assessment problematic. Many of the company-specific reliability-related tasks are very difficult to measure and some are not measureable. The time and manpower required to conduct the measurement of all assigned tasks is overly burdensome and unreasonable.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified. The SPT SDT also revised the measure for this requirement to include examples of evidence.			
AEP	☑	☑	Yes, with the requirement focus on "capabilities" to perform, and with the objective being to qualify the operator for the journey operating level of their operating position during their initial/progression training. (See the comments in Question 1 above) Yes, but the revision to existing training curriculums/resources, development of new resources, development of performance evaluation methods/tools, and on-going training assessment of new operators, will be essential for most transmission operating entities to comply with this requirement. This standard will therefore require a significant increase in training & development staff to comply, thus placing greater financial burden on the entities. However, we feel that how the assessment of each individual operator is conducted should be left up to the operating entity. As a part of an annual review system operators are felt to be qualified then and that should be sufficient to determine capabilities of an operator. If a new job task is implemented during that year then it is felt that the necessary training for that task should be given based on whatever method the specific entity feels meets that requirement.
Response: The SPT SDT agrees that it is "capability" not actual performance. The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing their BES company-specific reliability-related task list, as described in R1. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update their task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator. R2 (previously R4) allows for the training and knowledge base for task performance. The SPT SDT agrees that you can demonstrate the capability to perform the tasks in a training environment or during real-time operations. The responsible entity determines the assessment methodology and performs the assessment.			

Question #3			
Commenter	**Yes**	**No**	**Comment**
ATC	☑		
BCTC		☑	We cannot support R4 if the System Operator performance evaluation goes beyond the NERC CE program requirements to meet and maintain NERC Certification.
Response: NERC certification is irrelevant to on the job performance of required tasks. The NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPT SDT believes there is nothing in this standard that conflicts with the CE Program requirements. The standard does not limit the use of nor does it require an entity use the NERC CE Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH.			
CAISO		☑	If there were a possibility of developing and quantifying a viable level of competency, then the CAISO would support such a requirement. However, the CAISO believes that the determination of this competency level and assessment of the mismatch would be troublesome and likely not measurable. The idea of entity-identified task lists is the antithesis of the word standard. The question of training is paramount to everyone. The issue raised here is whether or not it is sensible to write an Industry Training standard. Assessing the capabilities of a given System Operator is an art not a science. To mandate such a art can (and likely will) result in entities being tied up in labor hearings for a long period of time debating whether or not the operator's 'capability level' is effectively measured by the NERC standard. Requirement 4 does not provide any quantifiable measure for identifying an operator's capabilities. Picking and choosing from a list makes this requirement even more subjective then a NERC-wide standard should be.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified. The requirement does not dictate the methodology that must be used by the responsible entity to perform the assessment. The SPT SDT believes that competency is measurable. The SPT SDT revised M2 (previously M4) to include some evidence examples.			
CenterPoint		☑	R4 is duplicative because the NERC System Operator Certification Program already certifies the competency of system operators. A revised generic task list (Attachment A) could be used to develop specific courses to form the curriculum for emergency operations and reliability related topics within existing NERC training programs. The Continuing Education Program already assesses the courses before it grants Continuing Education Hours used for recertification. Likewise, a revised generic task list could could

Question #3			
Commenter	**Yes**	**No**	**Comment**
			be used for the Continuing Education Program's curriculum.
Response: The SPT SDT disagrees. NERC certification is irrelevant to on the job performance of required tasks. The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its task list, as described in R1.			
NIPSCO	☑		This assessment should be part of the initial qualification effort, before the individual fills the position of system operator. The assessment should then take place every three years in conjunction with NERC re-certification. An annual assessment of each assigned task would be administratively arduous.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified. NERC certification is irrelevant to on the job performance of required tasks.			
NPCC RCS	☑	☑	We agree with this principle however please clarify how you propose to execute and measure this requirement.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified. The SPT SDT revised M2 (previously M4) to include some evidence examples.			
PG&E (1)	☑		
PG&E (2)		☑	The standard in its current language does not define how each task is to be assessed and documented. For instance would a check off sheet with the identified company-specific reliability related tasks be adequate? If a check off sheet were utilized, would this assessment be considered an annual process or is a one-time verification acceptable? What is the benefit to the operator in assessing each task? Do the tasks identify whether they will be performed as a team or individually and under normal or emergency conditions? Capabilities of an operator are a subjective interpretation by each company and measure (M.4) is left open to a wide interpretation by the evaluators and auditors. How would this be assessed in either the readiness evaluation or a compliance audit? If companies are following the standard to provide annual training, then the assessments for each task would at times be duplication of the annual and on going training and therefore create additional work for a trainer.
Response: The SPT SDT revised M2 (previously M4) to include some evidence examples.			
PJM		☑	If there were a possibility of developing and quantifying a viable level of competency, then PJM would support such a requirement. However, PJM believes that the determination of this competency level and assessment of the mismatch would be troublesome and likely not measurable.

Question #3			
Commenter	**Yes**	**No**	**Comment**
			The idea of entity-identified task lists is the antithesis of the word standard. The question of training is paramount to everyone. The issue raised here is whether or not it is sensible to write an Industry Training standard. Assessing the capabilities of a given System Operator is an art not a science. To mandate such a art can (and likely will) result in entities being tied up in labor hearings for a long period of time debating whether or not the operator's 'capability level' is effectively measured by the NERC standard. Requirement 4 does not provide any quantifiable measure for identifying an operator's capabilities. Picking and choosing from a list makes this requirement even more subjective then a NERC-wide standard should be.
Response: The requirement does not dictate the methodology that must be used to perform the assessment. The entity is responsible for performing the assessment. The SPT SDT believes that competency is measurable. The SPT SDT revised M2 (previously M4) to include some evidence examples.			
SRP	☑		R4 is OK as written. It appears to allow for various methods of verification of capabilities such as observed actual performance, observed performance using simulation tools, and testing. This should work given the various task frequency and various levels of criticality.
Response: The SPT SDT agrees and revised M2 (previously M4) to include some evidence examples.			
SDG&E		☑	It may be appropriate to perform an assessment, but the standard is getting over-prescriptive to require giving an assessment on a line by line basis. The assessment should be more global in nature regarding the general level of competency of the operator to perform the job functions.
Response: The approved SAR requires that each entity have evidence that each System Operator is competent to perform each assigned task. The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified.			
We Energies	☑		Yes as long as this will not be an annual requirement. There will be tasks that need to be assessed very infrequently.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the operator's assigned task list is modified.			
Garland		☑	See #1 above. It is too large of a burden on small utilities. The requirements should be modified for practicality and still accomplish the goal.
Response: Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for			

Question #3			
Commenter	**Yes**	**No**	**Comment**
its compliance with each requirement. The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified.			
HQT	☑	☑	We agree with the principle. However, please specify how you propose to to execute and measure this requirement.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the operator's assigned task list is modified. The SPT SDT revised M2 (previously M4) to include some evidence examples.			
IESO	☑	☑	The key attribute here is "assessment of the capabilities". As noted in our comments to Q1, above, while we do not disagree with developing a requirement for establishing the competency level for system personnel to perform the assigned tasks, the determination of this competency level and assessment of the mismatch would be troublesome and likely not measurable.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified. The SPT SDT revised M2 (previously M4) to include some evidence examples.			
ISO New England	☑	☑	We agree with this principle however please clarify how you propose to execute and measure this requirement.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified. The SPT SDT revised M2 (previously M4) to include some evidence examples.			
Manitoba Hydro	☑	☑	In theory I agree but from a practical purpose this is not easy. My real concern is who would be doing the evaluation. Besides being a burden on many utilities, as some utilities will maintain a narrow list of BES tasks so that they could comply. I am unsure whether or not each utility would treat the evaluation consistently. In some companies, supervisors work along side the system operators and may just give the evaluation a cursory effort. This would do nothing to improve training.
Response: The responsible entity determines the evaluation methodology and performs the evaluation. The SPT SDT also revised M2 (previously M4) to include some evidence examples.			

Question #3			
Commenter	**Yes**	**No**	**Comment**
Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each requirement.			
MISO Stakeholders		☑	Each operator should have an annual plan that includes a combination of training based on job tasks, simulation, and classroom knowledge-based training. There may be hundreds of tasks in an entities JTA. It is unnecessary and administratively burdensome to require an assessment each year against each task.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified. The SPT SDT revised M2 (previously M4) to include some evidence examples.			
MRO	☑	☑	In R4 it isn't clear how often the Operator's capabilities must be assessed. There is a mismatch between Question 3 and R4. Question 3 uses the words "perform an assessment" whereas R4 uses the word "verify". An assessment is an estimate whereas to verify is to actually test. Perhaps R4 should use "assess" rather than "verify". In theory MRO agrees with R4 but from a practical point of view this is significant overkill. MRO Operators are already required obtain NERC certification. There is also the NERC Reliability Readiness Evaluation and Improvement Program. In addition, compliance to many other real time standards test the capabilities of the positions every day. How can the standard ensure that the assessment is being done consistently from company to company depending on who actually does the assessment and how complete or accurate each company's specific BES task list is? For example, some utilities may maintain a narrow list of BES tasks so that they could more easily comply. Would each utility treat the evaluation consistently? In some companies, supervisors work along side the system operators and may just give the evaluation a cursory effort. This would do nothing to improve training. Do all tasks have to be assessed annually? Wording seems to be flawed in that every operator has to be varified on every task before they can operate. This does not seem to recognize that operators require actual operating experience to aquire capability in all tasks. In general R4 adds an excessive and and burdensome level of bureaucracy.
Response: The SPT SDT believes "verify" is a more appropriate term to ensure the System Operator is capable of performing the reliability-related tasks. The responsible entity determines the evaluation methodology and performs the evaluation. The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional verifications must be performed as the System Operator's assigned task list is modified. The SPT SDT revised M2 (previously M4) to include some			

Question #3			
Commenter	**Yes**	**No**	**Comment**
evidence examples.			
SPP ORWG	☑		We can concur with this requirement providing the assessment process does not become burdensome on the entity providing the assessment. A one-time assessment, while not burdensome of itself, may be inadequate to ensure continued operator performance. On the other hand, annual assessments would require an excessive amount of administrative time. A possible solution could be to allow company-specific assessment criteria such as being proposed for performance criteria.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional verifications must be performed as the System Operator's assigned task list is modified. The SPT SDT revised M2 (previously M4) to include some evidence examples.			
WECC OTS		☑	WECC OTS feels the standard in its current language does not define how each task is to be assessed and documented. For instance would a check off sheet with the identified company-specific reliability related tasks be adequate? If a check-off sheet were utilized, would this assessment be considered an annual process or is a one time verification acceptable? What is the benefit to the operator in assessing each task? Do the tasks identify whether they will be performed as a team or individually and under normal or emergency conditions? Capabilities of an operator are a subjective interpretation by each company and measure (M.4) is left open to a wide interpretation by the evaluators and auditors. How would this be assessed in either the readiness evaluation or a compliance audit? If companies are following the standard to provide annual training, then the assessments for each task would at times be duplication of the annual and on going training and therefore create additional work for a trainer. The OTS supports assessing the capabilities of the operators, however, we suggest it be more in line with the system operator certification, i.e. every three years.
Response: The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional verifications must be performed as the operator's assigned task list is modified. The SPT SDT revised M2 (previously M4) to include some evidence examples. The NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPTSDT believes there is nothing in this standard that conflicts with the CE Program requirements. The standard does not limit the use of nor does it require an entity use the NERC CE Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH.			

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

Summary Consideration:

Most commenters agreed with the Time Horizons. Several commenters requested a definition of long-term planning and appeared to be interchanging time horizons, effective date, and impact to implementation plan. The SPT SDT did not change the time horizons for the revised requirements.

Question #4			
Commenter	**Yes**	**No**	**Comment**
Ameren	☑		No comment.
Florida Power & Light	☑		No comment.
FRCC	☑		No comment.
LCRA		☑	If I do not agree with the requirments in the first place, then I can hardly agree with any time line.
Response: The SPT SDT revised the requirements based on industry comments.			
NYISO	☑		No comment.
OVEC	☑		No comment.
PHI	☑		No comment.
SMUD	☑		Please define Long Term Planning.
Response: Long Term Planning is a planning horizon of one year or more. It is one of the five Time Horizons that are used in determining the size of the sanction. If an entity violates a requirement and there is no time to mitigate the violation because the requirement takes place in real-time, then the sanction associated with the violation is higher than it would be for violation of a requirement that could be mitigated over a longer period of time. The definition of Long Term Planning, as well as other Time Horizons can be found in the NERC Drafting Team Guidelines which can be found at ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf.			
APS		☑	Since an approved training program based on SAT may not be ready for 36 months per 5.3, the assessment of training mismatch cannot be done until then. So, Requirement 2 should also become effective 36 months after the standard's approval.
Response: The SPT SDT believes there is some confusion between Time Horizons and the Implementation Plan. Time Horizons are used in determining the size of the sanction. If an entity violates a requirement and there is no time to mitigate the violation because the requirement takes place in real-time, then the sanction associated with the violation is higher than it would be for violation of a requirement that could be mitigated over a longer period of time. The definition of Long Term			

Question #4			
Commenter	**Yes**	**No**	**Comment**
Planning, as well as other Time Horizons can be found in the NERC Drafting Team Guidelines which can be found at ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf. The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its task list at least annually and then develop the necessary training to address the updated or new tasks. Section 5.2 has been removed from the revised standard.			
Santee Cooper	☑		No comment.
Avista	☑		No comment.
Entergy (1)	☑		Please add Time Horizon values to R1.1, R2.1, R2.2 and R3.1 and R3.1.1. It is not obvious the Time Horizon assigned to the Requirement also applies to the sub-requirement.
Response: Per the NERC Drafting Standard guidelines it is not necessary to add Time Horizons for each of the sub-requirements if the Time Horizons for the subrequirements is the same as the Time Horizon for the requirement.			
FirstEnergy	☑		
Quality Training Systems			No comment.
TAL	☑		Each requirement has a "Long-term Planning" horizon.
Response: The SPT SDT thanks you for your comment.			
Madison G&E		☑	a) Entities have established training programs per Regulatory Approved Standards. Proposed Effective Date, 5.1 is the only parallel, carry over requirement from a Regulatory Approved Standard (PER-002-0, R4) to this proposed standard. This time frame is workable. b) Proposed Effective Date, 5.2 is unclear (see comments of 2.a, above), so an effective date cannot be proposed yet. c) Proposed Effective Date, 5.3 for the proposed SAR contains over 370 tasks for operators and the time line is too aggressive. Registered Entities will need to be trained in the Systematic Approach to Training process, set up their own processes, convert established training to the SAT process, create new training and start to give training to System Operators. Budgets will need to be forecasted, personnel will need to be tasked with the training process (most companies have a small training department), this will take an extreme amount of time and cost are unknown at this time.
Response: The SPT SDT believes there is some confusion between Time Horizons and the Implementation Plan. Time			

Question #4			
Commenter	**Yes**	**No**	**Comment**
Horizons that are used in determining the size of the sanction. If an entity violates a requirement and there is no time to mitigate the violation because the requirement takes place in real-time, then the sanction associated with the violation is higher than it would be for violation of a requirement that could be mitigated over a longer period of time. The definition of Long Term Planning, as well as other Time Horizons can be found in the NERC Drafting Team Guidelines which can be found at ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. Section 5.2 has been removed from the revised standard. The SPT SDT believes your comments are in response to the Implementation Plan. The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
Entergy (2)	☑		
ERCOT		☑	See comments on #9.
Response: The SPT SDT has considered stakeholder comments on version 1 and Version 2 of the standard and believes the existing Implementation Plan reflects stakeholder consensus.			
Southern	☑		Long-term planning is the appropriate time horizon.
Response: The SPT SDT thanks you for your comment.			
Allegheny Power			
AEP	☑		
ATC	☑		
BCTC	☑		The requirement time horizon as Long Term Planning is okay.
Response: The SPT SDT thanks you for your comment.			
CAISO		☑	The Compliance elements of this standard should be postponed until the requirements are agreed to. The CCC will have final say on these elements in any case; therefore the SDT would save itself some effort by focusing on the primary elements before weighing in on the compliance elements. However, given the question being posed: The CAISO believes that assigning long-term planning to all the requirements is inappropriate, if not over-simplistic. For example, the annual assessment of the training

Question #4			
Commenter	**Yes**	**No**	**Comment**
			need and the subsequent development-of/revision-to a training program, as the requirement implies, occurs once every 12 months. This is normally regarded as an operations planning time frame if violation of this requirement is to be mitigated. Training in each of the requirements can cross over time horizons. Requirement 1 (which has not been vetted) states the entity must use the SAT 5 phases for all reliability-related tasks. If a new task that requires training is created for implementation tomorrow, how would that training program fall under long-term planning? Requirement 4 - when a new task arises, (assuming one accepts the premise of the requirement itself) then shouldn't the assessment take place as soon as possible?
Response: Time Horizons are prepared by the Standard Drafting Team, not the CCC. Please see the NERC Drafting Team Guidelines for a complete description of the elements that are prepared by each (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf). The SPT SDT revised the requirements and believes that based on the definitions included in the Drafting Team Guidelines the assignment of long-term planning is appropriate. The SPT SDT believes there is some confusion between Time Horizons and the amount of time it takes to perform the requirement. Time Horizons are used in determining the size of the sanction. If an entity violates a requirement and there is no time to mitigate the violation because the requirement takes place in real-time, then the sanction associated with the violation is higher than it would be for violation of a requirement that could be mitigated over a longer period of time.			
CenterPoint	☑		
NIPSCO		☑	The annual assessment is scheduled to begin before the baseline criteria for the evaluation is developed. It would be more beneficial to develop the standards upon which the evaluation will be based first so that the operators know what is expected from them.
Response: The SPT SDT agrees with your comment and combined these two requirements (R1 and R2).			
NPCC RCS	☑		
PG&E (1)			
PG&E (2)	☑		However, we would like a definition for long term planning?
Response: Long Term Planning is a planning horizon of one year or more. It is one of the five Time Horizons that are used in determining the size of the sanction. If an entity violates a requirement and there is no time to mitigate the violation because the requirement takes place in real-time, then the sanction associated with the violation is higher than it would be			

Question #4			
Commenter	**Yes**	**No**	**Comment**
for violation of a requirement that could be mitigated over a longer period of time. The definition of Long Term Planning, as well as other Time Horizons can be found in the NERC Drafting Team Guidelines which can be found at ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf.			
PJM		☑	The Compliance elements of this standard should be postponed until the requirements are agreed to. The CCC will have final say on these elements in any case; therefore the SDT would save itself some effort by focusing on the primary elements before weighing in on the compliance elements. However, given the question being posed: PJM believes that assigning long-term planning to all the requirements is inappropriate, if not over-simplistic. For example, the annual assessment of the training need and the subsequent development-of/revision-to a training program, as the requirement implies, occurs once every 12 months. This is normally regarded as an operations planning time frame if violation of this requirement is to be mitigated. Training in each of the requirements can cross over time horizons. Requirement 1 (which has not been vetted) states the entity must use the SAT 5 phases for all reliability-related tasks. If a new task that requires training is created for implementation tomorrow, how would that training program fall under long-term planning? Requirement 4 - when a new task arises, (assuming one accepts the premise of the requirement itself) then shouldn't the assessment take place as soon as possible?
Response: Time Horizons are prepared by the Standard Drafting Team, not the CCC. Please see the NERC Drafting Team Guidelines for a complete description of the elements that are prepared by each (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf). The SPT SDT revised the requirements and believes that based on the definitions included in the Drafting Team Guidelines the assignment of long-term planning is appropriate. The SPT SDT believes there is some confusion between Time Horizons and the amount of time it takes to perform the requirement. Time Horizons are used in determining the size of the sanction. If an entity violates a requirement and there is no time to mitigate the violation because the requirement takes place in real-time, then the sanction associated with the violation is higher than it would be for violation of a requirement that could be mitigated over a longer period of time.			
SRP	☑		

Question #4			
Commenter	**Yes**	**No**	**Comment**
SDG&E		☑	It is unclear what is the meaing of the time horizons.
Response: Long Term Planning is a planning horizon of one year or more. It is one of the five Time Horizons that are used in determining the size of the sanction. If an entity violates a requirement and there is no time to mitigate the violation because the requirement takes place in real-time, then the sanction associated with the violation is higher than it would be for violation of a requirement that could be mitigated over a longer period of time. The definition of Long Term Planning, as well as other Time Horizons can be found in the NERC Drafting Team Guidelines which can be found at ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf.			
We Energies	☑		
Garland		☑	Do not agree with the annual time line in R2. Long Term planning should be defined.
Response: Long Term Planning is a planning horizon of one year or more. It is one of the five Time Horizons that are used in determining the size of the sanction. If an entity violates a requirement and there is no time to mitigate the violation because the requirement takes place in real-time, then the sanction associated with the violation is higher than it would be for violation of a requirement that could be mitigated over a longer period of time. The definition of Long Term Planning, as well as other Time Horizons can be found in the NERC Drafting Team Guidelines which can be found at ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf. The SPT SDT believes your comment is in reference to R2, not the Time Horizon for R2. The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update their task list at least annually and then develop the necessary training to address the updated or new tasks.			
HQT	☑		
IESO	☑	☑	We do not agree with some of the requirements in the standard (see our comments under Q11) hence we have difficulties commenting on the time horizons. Given what's written, however, our general comment is that assigning long-term planning to all the requirements is inappropriate, if not over-simplistic. For example, the annual assessment of the training need and development of/revision to a training program, as the requirement implies, occurs once every 12 months. This is normally regarded as an operations planning time frame if violation of this requirement is to be mitigated.
Response: (1) In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. (2) The standard is addressing reliability-related tasks performed by the three applicable entities.			

Question #4			
Commenter	**Yes**	**No**	**Comment**
Long Term Planning is a planning horizon of one year or more. It is one of the five Time Horizons that are used in determining the size of the sanction. If an entity violates a requirement and there is no time to mitigate the violation because the requirement takes place in real-time, then the sanction associated with the violation is higher than it would be for violation of a requirement that could be mitigated over a longer period of time. The definition of Long Term Planning, as well as other Time Horizons can be found in the NERC Drafting Team Guidelines which can be found at ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf.			
ISO New England	☑		
Manitoba Hydro		☑	Do not understand what this means.
Response: Long Term Planning is a planning horizon of one year or more. It is one of the five Time Horizons that are used in determining the size of the sanction. If an entity violates a requirement and there is no time to mitigate the violation because the requirement takes place in real-time, then the sanction associated with the violation is higher than it would be for violation of a requirement that could be mitigated over a longer period of time. The definition of Long Term Planning, as well as other Time Horizons can be found in the NERC Drafting Team Guidelines which can be found at ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf.			
MISO Stakeholders		☑	As a general rule, we do not agree to any assignments of time horizons because time horizons were never vetted through the industry. The definitions also are not posted on the NERC web site in a prominent location. There were no time horizons assigned for R1 and R2 in PER-004-2.
Response: Time Horizons were not vetted through the stakeholder process. They were published in the ERO Sanctions Guidelines. The industry is being asked to provide feedback through the request for comments on the standards. The definition of Long Term Planning, as well as other Time Horizons can be found in the NERC Drafting Team Guidelines which can be found at ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf. The assignment of Time Horizons to the requirements that remain in the approved PER-004-2 is outside the scope of this standard.			
MRO	☑		
SPP ORWG	☑		It is our understanding that the Time Horizon of Long-term Planning allows a mitigation period of one year or more.
Response: The SPT SDT agrees with your understanding.			
WECC OTS	☑		However, we would like a definition for long term planning?
Response: Long Term Planning is a planning horizon of one year or more. It is one of the five Time Horizons that are used in determining the size of the sanction. If an entity violates a requirement and there is no time to mitigate the violation because the requirement takes place in real-time, then the sanction associated with the violation is higher than it would be			

Question #4			
Commenter	Yes	No	Comment
for violation of a requirement that could be mitigated over a longer period of time. The definition of Long Term Planning, as well as other Time Horizons can be found in the NERC Drafting Team Guidelines which can be found at ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf.			

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

Summary Consideration:

Most commenters did not agree with the Violation Risk Factors (VRFs) for each requirement, suggesting the all training requirements should have Lower VRF. The SPT SDT did not revise the VRFs for any of the requirements. The SPT SDT believes that based on the existing definitions of the VRFs, the VRFs should not be changed from Medium to Lower. The analysis of the August 2003 Blackout showed that training, or the lack of training, was a significant factor that contributed to the blackout.

Question #5			
Commenter	**Yes**	**No**	**Comment**
Ameren		☑	While qualified trained operators are important and thus traiining might appear to imply a greater VRF, the mechanics of training should be considered LOWER.
Response: The SPT SDT believes that based on the existing definitions of the VRFs, the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
Florida Power & Light		☑	The risk factors associated with the training standards should be "Lower" risk factors. These training activities will be occurring outside of the "real-time" operating arena and therefore violations of these requirements cannot in and of themselves cause impacts as defined by "Medium" risk factors. An entity would be required to violate several core operating requirements prior to the violation of a training requirement having any material impact on a system. At that, the linkage of an event to a training activity would be extremely subjective.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
FRCC		☑	The risk factors associated with the training standards should be "Lower" risk factors. These training activities will be occurring outside of the "real-time" operating arena and therefore violations of these requirements cannot in and of themselves cause impacts as defined by "Medium" risk factors. An entity would be required to violate several core operating requirements prior to the violation of a training requirement having any material impact on a system. At that, the linkage of an event to a training activity would be extremely subjective.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability			

Question #5			
Commenter	**Yes**	**No**	**Comment**
Standards Development Procedure Manual.			
LCRA		☑	See #4.
Response: The SPT SDT revised the requirements based on industry comments.			
NYISO		☑	Medium is an excessively high risk factor.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
OVEC		☑	The Risk Factor for each requirement should be low. Each of the requirements appear to be more administrative in nature and do not warrant a Medium risk factor as is currently assigned.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
PHI	☑		
SMUD		☑	All entities' risk factors should be assessed based on their possible impact to the BES.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
APS			No comment.
Santee Cooper	☑		No comment.
Avista		☑	For instance R2.3.1 is a Violation Risk Factor of High. SAT is not necessary; adaquate training programs exist currently without the benefit of SAT; therefore, a Violation Risk Factor of Low is more reasonable.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
Entergy (1)	☑		Please add VRFs to R1.1, R2.1, R2.2 and R3.1 and R3.1.1. It is not obvious the VRFs assigned to the Requirement also applies to the sub-requirement.
Response: Each requirement must have an associated Violation Risk Factor (VRF). To avoid being penalized more than once			

Question #5			
Commenter	**Yes**	**No**	**Comment**
for violating the same requirement, NERC is avoiding the assignment of VRF to sub-requirements.			
FirstEnergy	☑		
Quality Training Systems			No comment.
TAL		☑	These are not real time requirements. Any potential impact to the BES will be adequately captured in other approved standards and violation severities. These should all be Lower!
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
Madison G&E		☑	Since Violation Severity Levels have not been vetted through the electrical industry, levels of severity can not be applied to the proposed standard.
Response: Violation Severity Levels are currently being vetted through the stakeholder process. They were also published in the ERO Sanctions Guidelines. The industry is being asked to provide feedback through the request for comments on the standards. The Violation Severity Levels for this standard are being vetted through the industry as part of the standard development effort.			
Entergy (2)		☑	We believe these items to be in the LOWER risk factor category.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
ERCOT		☑	This has not been properly vetted through the industry. Furthermore, this is an administrative standard and medium to high risk should not apply unless the training program is grossly inadequate.
Response: Violation Risk Factors were not vetted through the stakeholder process. They were published in the ERO Sanctions Guidelines. The industry is being asked to provide feedback through the request for comments on the standards. The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
Southern	☑		Medium risk factor is appropriate for all.

Question #5			
Commenter	**Yes**	**No**	**Comment**
Response: The SPT SDT thanks you for your comment.			
Allegheny Power			
AEP		☑	R1. - No. This should be a "low" risk factor". An entity could do very good training without using the SAT, still identify reliability tasks, and not be at risk. Not providing a training program or avenue of training could be a "medium" risk factor, but not using SAT (ADDIE) is a "low" risk factor. SAT (ADDIE) is a great guide, but it doesn't warrant being a part of the standard requirement. The true requirement of R1 should be the requirement of entities to have a training program with training objectives to support the identified reliability tasks. If the only requirement of R1 was the requirement to identify Reliability Tasks (R1.1), a "Medium" risk factor might be appropriate. Renumbering of R1.1 and making it R2, thus separating this requirement from the SAT requirement, would be an improvement, and would allow two different risk factors. (Also see comments of Question 6 and Question 11 for R1) R2. - Yes. "Medium" risk is OK. R3. - Yes. "Medium" risk factor is OK. R4. - Yes. "Medium" risk is OK.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
ATC	☑		
BCTC		☑	These requirements changes are generally administrative issues and should be risk factor Low.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
CAISO		☑	The Compliance elements of this standard should be postponed until the requirements

Question #5			
Commenter	**Yes**	**No**	**Comment**
			are agreed to. The CCC and FERC will have final say on these VRFs, therefore the SDT would save itself some effort by focusing on the primary elements before weighing in on the compliance elements.
Response: Violation Risk Factors are prepared by the Standard Drafting Team, not the CCC. Please see the NERC Drafting Team Guidelines for a complete description of the elements that are prepared by each (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
CenterPoint			
NIPSCO	☑		
NPCC RCS	☑		
PG&E (1)			
PG&E (2)		☑	The purpose of the Violation Risk Factors is for use when determining a penalty or sanction. In reviewing the measures all requirements are administrative in terms of providing documentation that the requirement has been met. Training generally occurs outside of the real-time operations which have little impact on the BES and therefore a "Lower" risk factor versus the "Medium/High" risk factors would be appropriate.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
PJM		☑	The Compliance elements of this standard should be postponed until the requirements are agreed to. The CCC and FERC will have final say on these VRFs, therefore the SDT would save itself some effort by focusing on the primary elements before weighing in on the compliance elements.
Response: Violation Risk Factors are prepared by the Standard Drafting Team, not the CCC. Please see the NERC Drafting Team Guidelines for a complete description of the elements. (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual. .			
SRP	☑		
SDG&E			
We Energies	☑		
Garland		☑	I think the Violation risk factor for training requirements should be lower than a medium.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from			

Question #5			
Commenter	**Yes**	**No**	**Comment**
medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
HQT	☑		
IESO	☑		Given what's written, but we do not agree with some of the requirements (see Q11, below).
Response: (1) In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. (2) The standard is addressing reliability-related tasks performed by the three applicable entities.			
ISO New England	☑		
Manitoba Hydro	☑	☑	It is hard to believe that we are still mixing risk with importance. Yes training is an important component but it is a stretch to say that missing some item or document is going to place the system at risk.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
MISO Stakeholders		☑	As a general rule, we do not agree with the assignment of any Violation Risk Factors to any requirements since the Violation Risk Factor definitions have not been vetted through the industry. One could make a case that the lack of a training program could be a medium risk violation, however there should be no medium or high risk requirements in an administrative standard. We appear to be confusing importance with the probability of cascading.
Response: The Violation Risk Factors for this standard are being vetted through the industry as part of the standard development effort. The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
MRO	☑	☑	There is varied opinion on this. Perhaps the majority opinion is: It is hard to believe that we are still mixing risk with importance. Yes training is an important component but it is

Question #5			
Commenter	**Yes**	**No**	**Comment**
			a stretch to say that missing some item or document is going to place the system at immediate risk. MRO suggest these be assigned as LOW but does agree that training is important. Others agree with assigning Medium.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
SPP ORWG		☑	We can concur with maintaining the VSL of Medium on Requirement 1 but would recommend dropping the VSL to Low for R2, R3 and R4 since these requirements tend to be administrative.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			
WECC OTS		☑	OTS recommends the violation risk factors be set to 'Lower'. The purpose of the Violation Risk Factors is for use when determining a penalty or sanction. In reviewing the measures all requirements are administrative in terms of providing documentation that the requirement has been met. Training generally occurs outside of the real-time operations which have little impact on the BES and therefore a "Lower" risk factor versus the "Medium/High" risk factors would be appropriate.
Response: The SPT SDT believes that based on the existing definitions of the VRFs the VRFs should not be changed from medium to lower. The NERC Drafting Team Guidelines present the VRF definitions (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as the Reliability Standards Development Procedure Manual.			

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

Summary Consideration:

Most commenters did not agree with the Measures identified fro each requirement. Several commenters expressed concern that the required documentation was not well-defined, including the documentation from outside vendors that are used to meet the requirement. Several commenters provided comments on Measure 1, expressing concern that it was imposing new requirements and was too broad and confusing.

The SPT SDT revised each of the Measures to include examples of evidence. For example, here is the revised measure for the requirement to verify the capabilities of system operators:

M2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence (for example training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments) to show that it verified that each of its System Operators is capable of performing each assigned task identified in R1.1, as specified in R2.

Question #6			
Commenter	**Yes**	**No**	**Comment**
Ameren		☑	The required documentation needed for these measures is not well defined. Is a journal sufficient?, or a certificate?
Response: The SPT SDT revised each of the Measures to include examples of evidence. Please see the Summary Consideration for an example of one of the revised measures.			
Florida Power & Light		☑	M 1.4 - What would be required documentation for training delivered by an outside vendor? Would certificates be sufficient? M-2 - see comment on number 1 above. M-4 - see comment on number 3 above.
Response: The SPT SDT revised each of the Requirements, as well as the Measures. The Measures now include include examples of evidence, which do not exclude the use of vendors. The revised Measure for training delivery (M1.3) requires responsible entities to have System Operator training records showing the names of the people trained, the title of the training delivered, and the dates of delivery. The SPT SDT agrees that R2 was ambiguous and subjective. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update their BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT updated M1 to support the revised R1 and deleted M2. The SPT SDT also included examples of evidence in the			

Question #6			
Commenter	**Yes**	**No**	**Comment**
revised measure. The development of the Auditors Guide is outside the scope of this standard. The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified.			
FRCC	☑	☑	M 1.4 - What would be required documentation for training delivered by an outside vendor? Would certificates be sufficient? M-2 - see comment on number 1 above. M-4 - see comment on number 3 above.
Response: The SPT SDT revised each of the Requirements, as well as the Measures. The Measures now include include examples of evidence, which do not exclude the use of vendors. The revised Measure for training delivery (M1.3) requires responsible entities to have System Operator training records showing the names of the people trained, the title of the training delivered, and the dates of delivery. The SPT SDT agrees that R2 was ambiguous and subjective. The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update their BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT updated M1 to support the revised R1 and deleted M2. The SPT SDT also included examples of evidence in the revised Measure. The development of the Auditors Guide is outside the scope of this standard. The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each System Operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the System Operator's assigned task list is modified.			
LCRA		☑	Again, it is an unreal expectation to believe that smaller utlities can manage what amounts to an entirley new massive program.
Response: The SPT SDT revised each of the Measures to include examples of evidence.			
NYISO		☑	M4 is unmeasureable. Replace the wording "verification of the capabilities" with "training records". R4 is not measurable. Please replace the following: Each Reliability Coordinator, Balancing Authority and Transmission Operator shall maintain training records of each of its real-time System Operators. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall maintain records of

Question #6			
Commenter	**Yes**	**No**	**Comment**
			training programs provided to address the tasks on its list of company-specific BES reliability-related tasks.
Response: The SPT SDT revised each of the Measures to include examples of evidence such as training records.			
OVEC		☑	The M1 sub-measures are written more like requirements than measures. The submeasures should be deleted. Revise M1 to read, "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evdience of a SAT developed BES System Operator training program as stated in R1." This wording clearly measures all that is stated in requirement R1. In M2 it is unclear why the word "position" was included. For M3, delete the words "or system restoration training." Sytem restoration is considered a part of emergency operations.
Response: The SPT SDT agrees and has revised R1 and M1, combining R1 and R2 (and M1 and M2). The SPT SDT agrees with your suggestion to delete “or system restoration training” and has revised R3 and M3.			
PHI	☑		Except where we would like some clarification of Requirement 2 so that we would be clear about what is being assessed. See our comment to Q1.
Response: The SPT SDT agrees with your comment. The SPT SDT combined R1 and R2 to clarify the requirement. R1 requires each entity to update at least annually the BES company-specific reliability-related task list and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator at least once and and within six months of any new or revised task.			
SMUD	☑		
APS		☑	M1.4. The "E" in ADDIE means evaluations and assessments of training effectiveness. It does not directly refer to student evaluation, of whether "learning objectives are met" (i.e. exams, which are administered during Implementation). "E"valuation more often refers to Feedback, Exam Performance, Post-Training Evaluation, and Return on Investment studies. M4. (See Item 3 above) This "Measure" can never be consistently applied. Regarding this requirement, the Background Information on Page 3 of this document says "the standard does not specify how entities will measure this capability", leaving nothing but a future of debates during Audit Week.
Response: The SPT SDT has modified the Requirement and the Measure to clarify the type of evaluation that can be			

Question #6			
Commenter	**Yes**	**No**	**Comment**
performed. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator at least once and within six months of any new or revised task.			
Santee Cooper		☑	M2, M3, and M4 appear to be appropriate measures. M1 and R1 should not be included in a Reliability Standard. The Standard should address training that is required and not dictate how a company should implement their training.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each requirement.			
Avista		☑	M1- Removal of the term "job task analysis" but still requiring one is not much of a change from the previous draft. Again requiring every entity to have a SAT based training program is unnecessary.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised R1 requires that a systematic approach must be used to create new or revise existing training programs for BES company-specific reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each Requirement.			
Entergy (1)		☑	As written, M1 is intended to measure the "process" used to derive the result of each step of the SAT. We disagree with that measure. We suggest the Measure for R1 be a review of the "results" of each step of the SAT, not measure the process for development of those results. Given the specific wording of these requirements and measures, we are not sure what is being measured in M2. What is being measured in M2? Please be more specific in the words. For instance, is the "latest assessment for each position" and assessment of the job category, or an assessment of the individual employees performing in that position? Please make this measure significantly more clear and specific. M3 should be deleted and moved to EOP-005. We have similar issues with M4 as for M2, and a similar interpretation of the issues identified above for M2. What constitutes verification of the capabilities? Is this

Question #6			
Commenter	**Yes**	**No**	**Comment**
			verification of a person's performance appraisal? Is this a verification of the basic training requirements of a person to fill a position, like having a BSEE from an accredited university? Please make this measure significantly more clear and specific.
Response: The SPT SDT agrees and has revised R1 and M1, combining R1 and R2 (and M1 and M2). The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to its Reliability Standards Work Plan 2008-2010 that consolidates all training-related requirements into the PER standards. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator at least once and within six months of any new or revised task. The SPT SDT revised M4 (now M2) to include examples of evidence.			
FirstEnergy	☑		Many of the measures provide no additional information beyond the information contained in the requirement except to say "provide the evidence". In addition, where they do provide additional information, the measurement value is not contained in the requirement. As an example, measure M1.1. states that, "Analysis that results in a list of company-specific BES reliability-related tasks and measurable or observable criteria for desired performance for each task." However, there is nothing in R1 or the sub-requirements that states measurable or observable criteria for desired performance must be developed. All requirements should be clearly stated in the requirements section of the standard and the measures section should not impose new or additional requirements.
Response: The SPT SDT revised each of the Measures to include examples of evidence. Please see the Summary Consideration for an example of the way the SDT revised the measures. The SPT SDT agrees with your statement about R1 and M1 and has revised R1 and M1, combining R1 and R2 (and M1 and M2).			
Quality Training Systems			No comment.
TAL		☑	M1. This measure has no allowance for the use of outside vendors in a training plan. If a NERC Certified Provider is utilized, the entity should not be required to retain the providers documentation as required in M1.2 and M1.4. the retention of "evaluations and assessments" may include the use of end-of-course examinations which would violate exam security for the vendor if the entity has to retain them. The fact that CEH's were awarded should be sufficient for M1.2 and M1.4 in the case where a CEH provider

Question #6			
Commenter	**Yes**	**No**	**Comment**
			(even if it was the parent entity) is utilized. The industry has spent a lot of time, money and effort into getting the CEH program up and running. It has become the only way to maintain NERC Certification. Lets use it to it's fullest potential. If it is good enough for Credential maintenance, it should be good enough for the training program compliance. Violators of the CEH provider rules already have a method to be scrutinized. M2. This relates to Question 1. Is the intent to retain documentation for the Operator position or the Operator that mans the position and sits at the desk?
Response: The SPT SDT agrees and has revised R1 and M1, combining R1 and R2 (and M1 and M2). The revised Measure for training delivery (M1.3) requires responsible entities to have System Operator training records showing the names of the people trained, the title of the training delivered, and the dates of delivery. The NERC CE program and the required hours to maintain System Operator certification are independent of the proposed standard PER-005. The proposed Standard PER-005 does not prevent the inclusion or the exclusion of any training that meets the needs of an organization's training program under the proposed standard PER-005 and meets the CEH hour requirements to maintain System Operator certification.			
Madison G&E		☑	M1.2, Unclear what the difference is between "design" and "development", and these are in fact lumped into one measure even though they are considered 2 separate steps for the SAT process.
Response: The SPT SDT revised R1 and the associated Measures for each subrequirement. The measures include examples of evidence that can be used to show compliance. The SPT SDT posted a reference that includes resources with additional information on the SAT process.			
Entergy (2)		☑	M1, as currently written, is a review of an entity's entire training program from inception. This may be too broad of a Measure.
Response: The SPT SDT agrees and has revised R1 and M1, combining R1 and R2 (and M1 and M2).			
ERCOT		☑	Should state "applicable SAT-related outcomes" rather than "SAT related outcomes". The current wording will create unnecessary work. For example, an Analysis may show that the simplicity and frequency of a task does not need to move beyond the Analysis phase. This can be an audit liability when taken literally. M.4 Should state "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection verification of the qualifications for each real-time System Operator and their assigned positions, as specified in R4."
Response: The SPT SDT revised R1 and M1, combining R1 and R2 (and M1 and M2).			

Question #6			
Commenter	**Yes**	**No**	**Comment**
The SPT SDT revised each of the Measures to include examples of evidence. The intent of the proposed revision to M4 was adopted. The revised measure (now M2) allows a range of evidence such as training records showing successful completion of tasks with the employee name and date,supervisor check sheets showing the employee name, date, and task completed or the results of learning assessments.			
Southern	☑		
Allegheny Power			
AEP		☑	M1 - This measurement should require evidence of a training program that supports training and identification of reliability tasks, but the approach to training should be the choice of the operating entity. (R1 - SAT should be a guide given as a reference document, but should not be a requirement and measurement of the standard; see additional comment in Question 11). M2 - OK M3 - OK M4 - OK.
Response: The SPT SDT agrees and has revised R1 and M1, combining R1 and R2 (and M1 and M2). In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised R1 requires that a systematic approach must be used to create new or revise existing training programs for BES company-specific reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each requirement.			
ATC	☑		
BCTC		☑	From the comments we have provided we are suggesting the changes to the requirements are overall not acceptable, therefore the measures would have to be changed to reflect the changes to the requirements that are acceptable.
Response: The SPT SDT has revised the Requirements and the Measures.			
CAISO		☑	Measure 1 is not quantifiable. What evidence will demonstrate 'desired performance', if the desired performance is not defined in the standard itself? Because Requirement 2 is subjective, Measurement 2 is meaningless in the context of a NERC reliability standard. Measurement 3 is proof of attendance and not a true indicator of reliability impacts.

Question #6			
Commenter	**Yes**	**No**	**Comment**
			Measurement 4 requires that the subjective verification of the "capabilities" be documented. Even if such a measurement could be standardized, as written, this measurement requires nothing more that documentation of ineptness.
Response: The SPT SDT revised each of the Measures to include examples of evidence.			
CenterPoint			
NIPSCO	☑		
NPCC RCS		☑	It must be clear that no personal information or assessments that may be confidential are part of M2. The information should strictly be related to the System Operator's skills. Also see number 8 below regarding R1 and M1.
Response: The SPT SDT has clarified M1, such that the sources of evidence are clearer. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator at least once and within six months of any new or revised task. The SPT SDT also revised M4 (now M2) to include examples of evidence such as training records showing successful completion of tasks with the employee name and date,supervisor check sheets showing the employee name, date, and task completed or the results of learning assessments. In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each requirement.			
PG&E (1)			
PG&E (2)		☑	If the requirements change, then the measures should be changed to reflect the revised requirement.
Response: The SPT SDT revised the Requirements and the Measures.			
PJM		☑	Measure 1 is not quantifiable. What evidence will demonstrate 'desired performance', if the desired performance is not defined in the standard itself? Because Requirement 2 is subjective, Measurement 2 is meaningless in the context of a NERC reliability standard. Measurement 3 is proof of attendance and not a true indicator of reliability impacts. Measurement 4 requires that the subjective verification of the "capabilities" be

Question #6			
Commenter	**Yes**	**No**	**Comment**
			documented. Even if such a measurement could be standardized, as written this measurement requires nothing more that documentation of ineptness.
Response: The SPT SDT has clarified M1, such that the sources of evidence are clearer. The SPT SDT agrees and has revised R1 and M1, combining R1 and R2 (and M1 and M2). The SPT SDT agrees with your statement on M3. The requirement and measure are aimed at ensuring that training is provided. The SPT SDT agrees with your statement on M4 and has revised M2 (previously M4).			
SRP	☑		
SDG&E			
We Energies		☑	Wording of M1 and sub measures should be simplified/clarified. Wording of M1.2 should not preclude using training material from a vendor.
Response: The SPT SDT has clarified M1, such that the sources of evidence are clearer. The revised Measure for training delivery (M1.3) requires responsible entities to have System Operator training records showing the names of the people trained, the title of the training delivered, and the dates of delivery. The use of training material from a vendor is not precluded.			
Garland		☑	Again, small utilities can not manage a large training program with unreal expectations for training requirements. This would be great if you had unlimited resources or was only in the training business and not having to manage real time operations at the same time on a daily basis.
Response: The SPT SDT thanks you for your comment. The intent of the standard is to ensure that all system operators who work for a Reliability Coordinator, Balancing Authority and Transmission Operator have the capabilities to perform their reliability-related tasks. The size of an entity does not preclude that entity's system operators from having an impact on BES reliability.			
HQT		☑	It must be clear that no personal information or assessments that may be confidential are part of M2. The information should strictly be related to the System Operator's skills. Also see Q8 below regarding R1 and M1.
Response: The SPT SDT has clarified M1, such that the sources of evidence are clearer. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator at least once and within six months of any new or revised task. The SPT SDT also revised M4 (now M2) to include examples of evidence such as training records showing successful completion of tasks with the employee name and date,supervisor check sheets showing the employee name, date, and task completed or the results of learning assessments.			

Question #6			
Commenter	**Yes**	**No**	**Comment**
IESO	☑	☑	Yes, given what's written, but we do not agree with some of the requirements (see Q11, below). In addition, we think M3 should be expanded to cover the sub-requirements in R3. One item of particular concern is an entity is assigned a Low violation if it is found that it did not add or remove topics from the Emergency Operations Topics. This is not covered in M3, which only covers the 32 hour training duration requirement.
Response: (1) In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each requirement. (2) The standard is addressing BES company-specific reliability-related tasks performed by the three applicable entities. The SPT SDT has revised the requirements and the associated measures. The SPT SDT revised R3 such that the sub-requirements were eliminated.			
ISO New England		☑	It must be clear that no personal information or assessments that may be confidential are part of M2. The information should strictly be related to the System Operator's skills. Also see number 8 below regarding R1 and M1.
Response: The SPT SDT has clarified M1, such that the sources of evidence are clearer. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator at least once and within six months of any new or revised task. The SPT SDT also revised M4 (now M2) to include examples of evidence such as training records showing successful completion of tasks with the employee name and date,supervisor check sheets showing the employee name, date, and task completed or the results of learning assessments. In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each requirement.			
Manitoba Hydro		☑	On quick review it looks like additional requirements are being placed in the measures. The measures are complex and may not be understood.
Response: The SPT SDT agrees and has revised R1 and M1, combining R1 and R2 (and M1 and M2).			
MISO Stakeholders		☑	Measure 1 is confusing due to the sub-measures. Is this trying to say the training program shall have these four critieria? If so, it needs to be worded better. For example, we suggest simply replacing M1.1 with:

Question #6			
Commenter	**Yes**	**No**	**Comment**
			A list of company specific BES reliability-related tasks with measurable criteria for each task. This is much simply and clearer.
Response: The SPT SDT revised R1 and M1, combining R1 and R2 (and M1 and M2).			
MRO		☑	On quick review it looks like additonal requirements are being placed in the measures. For example, M1.1, seems to add an additional requirement of having measurable or observable criteria for desired performance for each task which is not stated in R1. The measures are complex and may not be understood. For example, in M4, it is not clear how "varification of the capabilities for each real-time operator" can actually be achieved and then varified to an auditor. In may also be inpractical to varify capability to perform some tasks if the individual operator has never actually been in a situation to demonstrate capability - follow the correct procedures to initiate loadshed in an emergency, for example.
Response: The SPT SDT agrees and has revised R1 and M1, combining R1 and R2 (and M1 and M2). The SPT SDT revised M4 to include examples of evidence such as training records showing successful completion of tasks with the employee name and date,supervisor check sheets showing the employee name, date, and task completed or the results of learning assessments.			
SPP ORWG	☑		Although we can not offer any suggestions for making it more focused, Measurement 1 is very broad. We are concerned about how we would be able to demonstrate that we have satisfied the requirements the way it is currently written.
Response: The SPT SDT agrees and has revised R1 and M1, combining R1 and R2 (and M1 and M2).			
WECC OTS		☑	OTS is suggesting in its comments changes to the requirements, therefore the measures would be changed to reflect the changes to these requirements. It also does not address training provided by third parties or vendors. What requirements would companies be under if this type of training were provided?
Response: The SPT SDT revised the Requirements and the Measures, including identifying examples of evidence. The revised Measure for training delivery (M1.3) requires responsible entities to have System Operator training records showing the names of the people trained, the title of the training delivered, and the dates of delivery. The use of training material from a vendor is not precluded.			

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

Summary Consideration:

Most commenters did not agree with the Compliance Monitoring section (D1) in the revised standard. Most comments requested clarification or definition of compliance monitoring terms, such as time period, Compliance Monitoring Period, Reset, and mitigation plans. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format. The term, "Compliance Monitoring Period and Reset" is not used in the revised standard.

The data retention period was modified. The revised standard requires retaining the current task list and evidence of compliance since the last audit. Since the Reliability Coordinator, Transmission Operator and Balancing Authority are all on a "once every three years" audit cycle, this means that the retention period would not be longer than three years.

Question #7			
Commenter	**Yes**	**No**	**Comment**
Ameren		☑	Once again the time period is not well defined.
Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before performance is assumed to be at the 'zero' infractions level for the purpose of determining an appropriate sanction. The FERC had determined that a 'reset' time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format.			
Florida Power & Light		☑	D1.2 - What is the compliance Monitoring Period? Should the Reset period be one month when these are apparently annual requirements? D1.3 - Why is data retention four years? What is the benefit of an additional year of records past the last compliance audit which is required every 3 years per D1.4? - Is the retention of "any data used in mitigation plans associated with this standard" intended to be an indefenite retention? This is not clear. Is the "mitigation plan" intended to be mitigation for the entity to get in compliance with the standard, or for the individual operator to achieve the desired performance level per the entity's training plan?
Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before			

Question #7			
Commenter	**Yes**	**No**	**Comment**
performance is assumed to be at the 'zero' infractions level for the purpose of determining an appropriate sanction. The FERC had determined that a 'reset' time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format. The data retention time frame was changed to reflect the compliance audit cycles. The registered entity must keep data available since the last audit for the compliance monitor to review. Additionally, the compliance enforcement authority is responsible to retain its audit data for one audit cycle – so that if the compliance enforcement authority is auditing an entity that is subject to audit every three years, the compliance enforcement authority must keep that audit data for at least three years – similarly if a compliance enforcement authority is auditing an entity that is subject to audit once every six years, the compliance enforcement authority must keep that audit data for at least six years. The definition of a Mitigation Plan is: An action plan developed by a Registered entity to (i) correct a violation of a Reliability Standard and (ii) prevent re-occurrence of the violation. A Mitigation Plan is required whenever a Registered entity violates a Reliability Standard as determined by any means including Compliance Enforcement Authority decision, Settlement Agreement, or otherwise. This is defined in the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". FERC has approved the CMEP. Mitigations plans address compliance violations, whether self reported, during an on-site audit, etc. Once an alleged violation is confirmed by the regional entity (RE), the registered entity will submit a mitigation plan to it's RE. The RE will approve or disapprove the mitigation plan. The RE submits the mitigation plan to NERC for approval. Once NERC approves, the plans are reported to FERC. The RE will track the status of all mitigation plans with the registered entity.			
FRCC		☑	D1.2 - What is the compliance Monitoring Period? Should the Reset period be one month when these are apparently annual requirements? D1.3 - Why is data retention four years? What is the benefit of an additional year of records past the last compliance audit which is required every 3 years per D1.4? - Is the retention of "any data used in mitigation plans associated with this standard" intended to be an indefenite retention? This is not clear. Is the "mitigation plan" intended to be mitigation for the entity to get in compliance with the standard, or for the individual operator to achieve the desired performance level per the entity's training plan?
Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a			

Question #7			
Commenter	**Yes**	**No**	**Comment**
minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before performance is assumed to be at the 'zero' infractions level for the purpose of determining an appropriate sanction. The FERC had determined that a 'reset' time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format. This data retention time frame was changed to reflect the compliance audit cycles. The registered entity must keep data available since the last audit for the compliance monitor to review. Additionally, the compliance enforcement authority is responsible to retain its audit data for one audit cycle – so that if the compliance enforcement authority is auditing an entity that is subject to audit every three years, the compliance enforcement authority must keep that audit data for at least three years – similarly if a compliance enforcement authority is auditing an entity that is subject to audit once every six years, the compliance enforcement authority must keep that audit data for at least six years. The definition of a Mitigation Plan is: An action plan developed by a Registered Entity to (i) correct a violation of a Reliability Standard and (ii) prevent re-occurrence of the violation. A Mitigation Plan is required whenever a Registered Entity violates a Reliability Standard as determined by any means including Compliance Enforcement Authority decision, Settlement Agreement, or otherwise. This is defined in the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". FERC has approved the CMEP. Mitigations plans address compliance violations, whether self reported, during an on-site audit, etc. Once an alleged violation is confirmed by the regional entity (RE), the registered entity will submit a mitigation plan to it's RE. The RE will approve or disapprove the mitigation plan. The RE submits the mitigation plan to NERC for approval. Once NERC approves, the plans are reported to FERC. The RE will track the status of all mitigation plans with the registered entity. The data retention section of the standard was revised and no longer references "mitigation plans" – in the revised standard, if the responsible entity is found to be noncompliant, that entity must keep evidence related to the noncompliance until found compliant. Thus, in the revised standard, it is clear that the responsible entity does not have to keep evidence for an indefinite period of time.			
LCRA		☑	See #4.
Response: The SPT SDT revised the requirements based on industry comments.			
NYISO		☑	There is no requirement that requires data retention. There should be. See the proposed rewording of R4 above. Mitigation plans are addressed nowhere in the standard except in data retention. It is an undefined term.
Response: All data retention requirements fall under Section D1, which includes Data Retention. The SPT SDT revised the			

Question #7			
Commenter	**Yes**	**No**	**Comment**
Compliance Monitoring section to be consistent with the revised content and format. The definition of a Mitigation Plan is: An action plan developed by a Registered Entity to (i) correct a violation of a Reliability Standard and (ii) prevent re-occurrence of the violation. A Mitigation Plan is required whenever a Registered Entity violates a Reliability Standard as determined by any means including Compliance Enforcement Authority decision, Settlement Agreement, or otherwise. This is defined in the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". FERC has approved the CMEP. Mitigations plans address compliance violations, whether self reported, during an on-site audit, etc. Once an alleged violation is confirmed by the regional entity (RE), the registered entity will submit a mitigation plan to it's RE. The RE will approve or disapprove the mitigation plan. The RE submits the mitigation plan to NERC for approval. Once NERC approves, the plans are reported to FERC. The RE will track the status of all mitigation plans with the registered entity. The data retention section of the standard was revised and no longer references "mitigation plans" – in the revised standard, if the responsible entity is found to be noncompliant, that entity must keep evidence related to the noncompliance until found compliant. Thus, in the revised standard, it is clear that the responsible entity does not have to keep evidence for an indefinite period of time.			
OVEC		☑	In Section D, 1.4 the annual self-certification submittal should not be included in the standard but left to NERC's discretion to either include or exclude monitoring in the annual compliance and enforcement program. The impact on the system from this standard is minimal if it is not monitored for compliance on a yearly basis.
Response: The NERC Compliance Monitoring and Enforcement Program (CMEP), approved by FERC, addresses each method listed for determining compliance. Per the delegation agreements, the regional entities must include each of these methods in its compliance program. Inclusion of these methods provides the registered entity information on various methods used to determine compliance with this standard to which it is subject. More information concerning this can be found on the NERC website, under Compliance, open the "Uniform CMEP document". (ftp://www.nerc.com/pub/sys/all_updl/rop/Appendix4C-Uniform-CMEP-eff-041907.pdf) The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format.			
PHI	☑		
SMUD	☑		Please define Compliance - 1.2 Monitoring Period Reset.
Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before performance is assumed to be at the 'zero' infractions level for the purpose of determining an appropriate sanction. The			

Question #7			
Commenter	**Yes**	**No**	**Comment**
FERC had determined that a 'reset' time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format.			
APS			No comment.
Santee Cooper		☑	Most NERC Standards require three years or less for documentation to be maintained.
Response: This data retention time frame was changed to reflect the compliance audit cycles. The registered entity must keep data available since the last audit for the compliance monitor to review. Additionally, the compliance enforcement authority is responsible to retain its audit data for one audit cycle – so that if the compliance enforcement authority is auditing an entity that is subject to audit every three years, the compliance enforcement authority must keep that audit data for at least three years – similarly if a compliance enforcement authority is auditing an entity that is subject to audit once every six years, the compliance enforcement authority must keep that audit data for at least six years. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format.			
Avista		☑	
Entergy (1)	☑		
FirstEnergy		☑	The compliance monitoring and reset period is a vague concept that may be of little or no value in the mandatory compliance regime. Under the mandatory compliance regime, non-compliance is followed by a mitigation plan that contains the date by which compliance will be achieved and thus reset the compliance clock. This reduces or eliminates the value of the monitoring and reset period.
Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before performance is assumed to be at the 'zero' infractions level for the purpose of determining an appropriate sanction. The FERC had determined that a 'reset' time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format.			
Quality Training Systems			No comment.
TAL		☑	D1.2 - What is the compliance Monitoring Period? Should the Reset period be one month when these are apparently annual requirements? D1.3 - Why is data retention four years? What is the benefit of an additional year of records past the last compliance audit which is required every 3 years per D1.4?

Question #7			
Commenter	**Yes**	**No**	**Comment**
			- Is the retention of "any data used in mitigation plans associarted with this standard" intended to be an indefenite retention? This is not clear. Is the "mitigation plan" intended to be mitigation for the entity to get in compliance with the standard, or for the individual operator to achieve the desired performance level per the entity's training plan?
Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before performance is assumed to be at the 'zero' infractions level for the purpose of determining an appropriate sanction. The FERC had determined that a 'reset' time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format. This data retention time frame was changed to reflect the compliance audit cycles. The registered entity must keep data available since the last audit for the compliance monitor to review. Additionally, the compliance enforcement authority is responsible to retain its audit data for one audit cycle – so that if the compliance enforcement authority is auditing an entity that is subject to audit every three years, the compliance enforcement authority must keep that audit data for at least three years – similarly if a compliance enforcement authority is auditing an entity that is subject to audit once every six years, the compliance enforcement authority must keep that audit data for at least six years. The definition of a Mitigation Plan is: An action plan developed by a Registered Entity to (i) correct a violation of a Reliability Standard and (ii) prevent re-occurrence of the violation. A Mitigation Plan is required whenever a Registered Entity violates a Reliability Standard as determined by any means including Compliance Enforcement Authority decision, Settlement Agreement, or otherwise. This is defined in the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". FERC has approved the CMEP. Mitigations plans address compliance violations, whether self reported, during an on-site audit, etc. Once an alleged violation is confirmed by the regional entity (RE), the registered entity will submit a mitigation plan to it's RE. The RE will approve or disapprove the mitigation plan. The RE submits the mitigation plan to NERC for approval. Once NERC approves, the plans are reported to FERC. The RE will track the status of all mitigation plans with the registered entity. The data retention section of the standard was revised and no longer references "mitigation plans" – in the revised standard, if the responsible entity is found to be noncompliant, that entity must keep evidence related to the noncompliance until found compliant. Thus, in the revised standard, it is clear that the responsible entity does not have to keep evidence for an indefinite period of time.			
Madison G&E		☑	a) It is unclear what the one month period is meant to be in Compliance 1.2. If it is

Question #7			
Commenter	**Yes**	**No**	**Comment**
			meant to mean that the requirements need to be met monthly, then the requirements are too in-depth to be met on a monthly basis. A full evaluation of each operator on a monthly basis in particular would be impractical. R3 already mentions it is an annual requirement, and this time period seems reasonable for all of the requirements. b) Data Retention, 1.3, Do not understand the 4 year retention period, since Registered Entities (RC, TO, BA) will be audited every three years.
Response: a) The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before performance is assumed to be at the 'zero' infractions level for the purpose of determining an appropriate sanction. The FERC has determined that a 'reset' time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format. b) This data retention time frame was changed to reflect the compliance audit cycles. The registered entity must keep data available since the last audit for the compliance monitor to review. Additionally, the compliance enforcement authority is responsible to retain its audit data for one audit cycle – so that if the compliance enforcement authority is auditing an entity that is subject to audit every three years, the compliance enforcement authority must keep that audit data for at least three years – similarly if a compliance enforcement authority is auditing an entity that is subject to audit once every six years, the compliance enforcement authority must keep that audit data for at least six years.			
Entergy (2)	☑		
ERCOT		☑	The requirments for self-certification should be identified. Without reasonable guidelines, a Regional Entity will have free reign to set whatever self-reporting standards it deems fit. With the current wording, annual self-certification has the potential to become very stringent.
Response: The NERC Compliance Monitoring and Enforcement Program (CMEP), approved by FERC, addresses each method listed for determining compliance. Per the delegation agreements, the regional entities must include each of these methods in its compliance program. Inclusion of these methods provides the registered entity information on various methods used to determine compliance with this standard to which it is subject. More information concerning this can be found on the NERC website, under Compliance, open the "Uniform CMEP document". (ftp://www.nerc.com/pub/sys/all_updl/rop/Appendix4C-Uniform-CMEP-eff-041907.pdf) The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format.			
Southern		☑	Under D2.2 and D2.3.1.1 it states in the Note for each of the subsections that if R1.1 or

Question #7			
Commenter	**Yes**	**No**	**Comment**
			R1.2 is violated, the entity is also in violation of R1. This is double jeopardy and does not seem correct, especially where the subsection only provides more detail about what is being required in the above section and does not represent a new requirement. R1 says you must complete the five phases of a SAT to establish a new or modify an existing company specific training program. R1.1 provides some specific details about what the analysis phase of the SAT training program should consist of. If you do not complete R1.1 adequately then there should be only one violation and not two violations. Under Data Retention, a minimum of four years of data retention is not appropriate. It should be restated to say a maximum of 3 years of data should be retained or since the last compliance audit has been performed. However, if the entity had been found to be non-compliant for a particular requirement in the most recent compliance audit, then additional data should be retained for longer than the previous compliance audit but no longer than 3 years.
Response: The SPT SDT agrees with your statement about double jeopardy and has removed 2.3.1.1. This data retention time frame was changed to reflect the compliance audit cycles. The registered entity must keep data available since the last audit for the compliance monitor to review. Additionally, the compliance enforcement authority is responsible to retain its audit data for one audit cycle – so that if the compliance enforcement authority is auditing an entity that is subject to audit every three years, the compliance enforcement authority must keep that audit data for at least three years – similarly if a compliance enforcement authority is auditing an entity that is subject to audit once every six years, the compliance enforcement authority must keep that audit data for at least six years. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format.			
Allegheny Power			
AEP		☑	D1.3. - We do not see the benefit of increasing the data retention from 3 years to 4 years. NERC Readiness evaluations and Regional Compliance audits are based on 3 years. PER-002-0 present data retention compliance is 3 years. Holding data since last audit (3 years) should be adequate.
Response: This data retention time frame was changed to reflect the compliance audit cycles. The registered entity must keep data available since the last audit for the compliance monitor to review. Additionally, the compliance enforcement authority is responsible to retain its audit data for one audit cycle – so that if the compliance enforcement authority is auditing an entity that is subject to audit every three years, the compliance enforcement authority must keep that audit data for at least three years – similarly if a compliance enforcement authority is auditing an entity that is subject to audit once			

Question #7			
Commenter	**Yes**	**No**	**Comment**
every six years, the compliance enforcement authority must keep that audit data for at least six years.			
ATC	☑		
BCTC	☑		1.2. We are not clear what a performance reset period is but we are okay with it; 1.3 and 1.4 okay.
Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before performance is assumed to be at the 'zero' infractions level for the purpose of determining an appropriate sanction. The FERC has determined that a 'reset' time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format.			
CAISO		☑	The Compliance elements of this standard should be postponed until the requirements are agreed to. We note the following: 1. The entity "Compliance Enforcement Authority" is a new term. It is not found in the Functional Model. 2. The compliance elements should not impose requirements that are not in the standard itself. To require a responsible entity to maintain records on whether it is following or followed any mitigation plan associated with the standard is outside the standard itself. The standard does not address mitigation plans anywhere. This also applies to the requirement on the Compliance Monitor to retain any data used in mitigation plans associated with this standard, particularly since the Compliance Monitor does not appear on the Applicability List at the beginning of the standard.
Response: 1. The use of the term Compliance Enforcement Authority (CEA) relates to the "Compliance Monitor" referred to in the functional model. The definition of CEA is: NERC or the Regional Entity in their respective roles of monitoring and enforcing compliance with the NERC Reliability Standards, as defined the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format. NERC as the ERO is the Compliance Enforcement Authority as designated by FERC. NERC has delegation agreements with the regional entities, which defines their role as a compliance enforcement authority. Both NERC and the regional entity are			

Question #7			
Commenter	**Yes**	**No**	**Comment**
responsible for monitoring compliance. 2. The SPT SDT revised the requirements. The definition of a Mitigation Plan is: An action plan developed by a Registered entity to (i) correct a violation of a Reliability Standard and (ii) prevent re-occurrence of the violation. A Mitigation Plan is required whenever a Registered Entity violates a Reliability Standard as determined by any means including Compliance Enforcement Authority decision, Settlement Agreement, or otherwise. This is defined in the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". FERC has approved the CMEP. Mitigations plans address compliance violations, whether self reported, during an on-site audit, etc. Once an alleged violation is confirmed by the regional entity (RE), the registered entity will submit a mitigation plan to it's RE. The RE will approve or disapprove the mitigation plan. The RE submits the mitigation plan to NERC for approval. Once NERC approves, the plans are reported to FERC. The RE will track the status of all mitigation plans with the registered entity. The requirements in the standard identify the performance or outcome needed for BES reliability. The compliance elements in the standard identify how compliance will be monitored and assessed. Maintaining records to provide evidence of compliance does not have a direct impact on reliability – the records are solely retained for compliance, not for reliability – and as such, they belong in the compliance section of the standard.			
CenterPoint			
NIPSCO		☑	Compliance monitoring period and reset lists the performance reset period for all requirements at one month, which would make the annual training requirements ineffective.
Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated and then reset. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format.			
NPCC RCS		☑	D1.2, the reset period seems unrealistic and short. The assessment is due annually. D1.3 delete onsite. Also who is the Compliance Monitor intended to be.
Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before performance is assumed to be at the 'zero' infractions level for the purpose of determining an appropriate sanction. The FERC has determined that a 'reset' time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently			

Question #7			
Commenter	**Yes**	**No**	**Comment**
in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format. There are other forms of audits, for example “table-top” audits. The term “on-site” audit refers to the audit cycle. Some registered entities are on a 6-year audit cycle and others are on a three-year audit cycle. FERC has specified an “on-site” audit be performed on either a 3 or 6 year audit cycle depending on the registration of the entity. RC, BA and TOP will be audited at a minimum of 3 years. The use of the term Compliance Enforcement Authority (CEA) relates to the “Compliance Monitor” referred to in the functional model. The definition of CEA is: NERC or the Regional Entity in their respective roles of monitoring and enforcing compliance with the NERC Reliability Standards, as defined the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the “Uniform CMEP document”. NERC as the ERO is the Compliance Enforcement Authority as designated by FERC. NERC has delegation agreements with the regional entities, which defines their role as a compliance enforcement authority. Both NERC and the regional entity are responsible for monitoring compliance.			
PG&E (1)			
PG&E (2)		☑	D.1.2 What is the compliance monitoring period and when does the reset period begin if training is an annual requirement? D.1.3 is referencing data retention; a question arises over "mitigation plans". Who does it apply to, the entities program or the operator? We also question the four year data retention, what is the purpose since it is counter to D.1.4 requirement of a Compliance Audit every three years.
Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before performance is assumed to be at the ‘zero’ infractions level for the purpose of determining an appropriate sanction. The FERC has determined that a ‘reset’ time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format. The definition of a Mitigation Plan is: An action plan developed by a Registered Entity to (i) correct a violation of a Reliability Standard and (ii) prevent re-occurrence of the violation. A Mitigation Plan is required whenever a Registered Entity violates a Reliability Standard as determined by any means including Compliance Enforcement Authority decision, Settlement Agreement, or otherwise. This is defined in the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the “Uniform CMEP document”. FERC has approved the CMEP. Mitigations plans address compliance violations, whether self reported, during an			

Question #7			
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on-site audit, etc. Once an alleged violation is confirmed by the regional entity (RE), the registered entity will submit a mitigation plan to it's RE. The RE will approve or disapprove the mitigation plan. The RE submits the mitigation plan to NERC for approval. Once NERC approves, the plans are reported to FERC. The RE will track the status of all mitigation plans with the registered entity. The data retention section of the standard was revised and no longer references "mitigation plans" – in the revised standard, if the responsible entity is found to be noncompliant, that entity must keep evidence related to the noncompliance until found compliant. This data retention time frame was changed to reflect the compliance audit cycles. The registered entity must keep data available since the last audit for the compliance monitor to review. Additionally, the compliance enforcement authority is responsible to retain its audit data for one audit cycle – so that if the compliance enforcement authority is auditing an entity that is subject to audit every three years, the compliance enforcement authority must keep that audit data for at least three years – similarly if a compliance enforcement authority is auditing an entity that is subject to audit once every six years, the compliance enforcement authority must keep that audit data for at least six years.			
PJM		☑	The Compliance elements of this standard should be postponed until the requirements are agreed to. PJM would note the following: 1. The entity "Compliance Enforcement Authority" is a new term. It is not found in the Functional Model. 2. The compliance elements should not impose requirements that are not in the standard itself. To require a responsible entity to maintain records on whether it is following or followed any mitigation plan associated with the standard is outside the standard itself. The standard does not address mitigation plans anywhere. This also applies to the requirement on the Compliance Monitor to retain any data used in mitigation plans associated with this standard, particularly since the Compliance Monitor does not appear on the Applicability List at the beginning of the standard.
Response: 1. The use of the term Compliance Enforcement Authority (CEA) relates to the "Compliance Monitor" referred to in the functional model. The definition of CEA is: NERC or the Regional Entity in their respective roles of monitoring and enforcing compliance with the NERC Reliability Standards, as defined the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format. NERC as the ERO is the Compliance Enforcement Authority as designated by FERC. NERC has delegation agreements with			

Question #7			
Commenter	**Yes**	**No**	**Comment**
the regional entities, which defines their role as a compliance enforcement authority. Both NERC and the regional entity are responsible for monitoring compliance. 2. The SPT SDT revised the requirements. The requirements in the standard identify the performance or outcome needed for BES reliability. The compliance elements in the standard identify how compliance will be monitored and assessed. Maintaining records to provide evidence of compliance does not have a direct impact on reliability – the records are solely retained for compliance, not for reliability – and as such, they belong in the compliance section of the standard. The applicability section of the standard only identifies the functional entities with responsibility for compliance with the reliability requirements. The definition of a Mitigation Plan is: An action plan developed by a Registered Entity to (i) correct a violation of a Reliability Standard and (ii) prevent re-occurrence of the violation. A Mitigation Plan is required whenever a Registered Entity violates a Reliability Standard as determined by any means including Compliance Enforcement Authority decision, Settlement Agreement, or otherwise. This is defined in the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". FERC has approved the CMEP. Mitigations plans address compliance violations, whether self reported, during an on-site audit, etc. Once an alleged violation is confirmed by the regional entity (RE), the registered entity will submit a mitigation plan to it's RE. The RE will approve or disapprove the mitigation plan. The RE submits the mitigation plan to NERC for approval. Once NERC approves, the plans are reported to FERC. The RE will track the status of all mitigation plans with the registered entity. The data retention section of the standard was revised and no longer references "mitigation plans" – in the revised standard, if the responsible entity is found to be noncompliant, that entity must keep evidence related to the noncompliance until found compliant.			
SRP	☑		
SDG&E			
We Energies	☑		1.3 Data Retention - how long must evidence that a mitigation plan was followed be kept?
Response: The data retention section of the standard was revised and no longer references "mitigation plans" – in the revised standard, if the responsible entity is found to be noncompliant, that entity must keep evidence related to the noncompliance until found compliant.			
Garland		☑	I do not agree with the requirements in the standard, so the Compliance Process can not be addressed until the requirements are agreed upon.
Response: The SPT SDT revised the requirements based on industry feedback. The SPT SDT revised the Compliance			

Question #7			
Commenter	**Yes**	**No**	**Comment**
Monitoring section to be consistent with the revised content and format.			
HQT		☑	D1.2, the reset period seems unrealistic and short. The assessment is due annually. D1.3 delete onsite. Also who is the Compliance Monitor intended to be.
Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before performance is assumed to be at the 'zero' infractions level for the purpose of determining an appropriate sanction. The FERC has determined that a 'reset' time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format. There are other forms of audits, for example "table-top" audits. The term "on-site" audit refers to the audit cycle. Some registered entities are on a 6-year audit cycle and others are on a three-year audit cycle. FERC has specified an "on-site" audit be performed on either a 3 or 6 year audit cycle depending on the registration of the entity. RC, BA and TOP will be audited at a minimum of once every 3 years. The use of the term Compliance Enforcement Authority (CEA) relates to the "Compliance Monitor" referred to in the functional model. The definition of CEA is: NERC or the Regional Entity in their respective roles of monitoring and enforcing compliance with the NERC Reliability Standards, as defined the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". NERC as the ERO is the Compliance Enforcement Authority as designated by FERC. NERC has delegation agreements with the regional entities, which defines their role as a compliance enforcement authority. Both NERC and the regional entity are responsible for monitoring compliance.			
IESO		☑	We have difficulties with the following elements: 1. The entity "Compliance Enforcement Authority" is a new term and should be replaced with the equivalent Functional Model entity. 2. The compliance elements should deal with assessing whether or not, or the extent to which, responsible entities meet the requirements according to the measures. To require a responsible entity to maintain records on whether it is following or followed any mitigation plan associated with the standard appears to be a follow-up process after the entity has been assessed non-compliant. This seems to be outside the scope of a standard. Similar comment on the requirement for the Compliance Monitor to retain any data used in mitigation plans associated with this standard, and the Compliance Monitor

Question #7			
Commenter	**Yes**	**No**	**Comment**
			is not on the applicability list.
Response: 1. The use of the term Compliance Enforcement Authority (CEA) relates to the "Compliance Monitor" referred to in the functional model. The definition of CEA is: NERC or the Regional Entity in their respective roles of monitoring and enforcing compliance with the NERC Reliability Standards, as defined the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format. NERC as the ERO is the Compliance Enforcement Authority as designated by FERC. NERC has delegation agreements with the regional entities, which defines their role as a compliance enforcement authority. Both NERC and the regional entity are responsible for monitoring compliance. 2. The SPT SDT revised the requirements. The definition of a Mitigation Plan is: An action plan developed by a Registered Entity to (i) correct a violation of a Reliability Standard and (ii) prevent re-occurrence of the violation. A Mitigation Plan is required whenever a Registered Entity violates a Reliability Standard as determined by any means including Compliance Enforcement Authority decision, Settlement Agreement, or otherwise. This is defined in the Compliance Monitoring and Enforcement Program. he Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". FERC has approved the CMEP. Mitigations plans address compliance violations, whether self reported, during an on-site audit, etc. Once an alleged violation is confirmed by the regional entity (RE), the registered entity will submit a mitigation plan to it's RE. The RE will approve or disapprove the mitigation plan. The RE submits the mitigation plan to NERC for approval. Once NERC approves, the plans are reported to FERC. The RE will track the status of all mitigation plans with the registered entity. The data retention section of the standard was revised and no longer references "mitigation plans" – in the revised standard, if the responsible entity is found to be noncompliant, that entity must keep evidence related to the noncompliance until found compliant. The applicability section of the standard only identifies the functional entities with responsibility for compliance with the reliability requirements.			
ISO New England		☑	D1.2, the reset period seems unrealistic and short. The assessment is due annually. D1.3 delete "onsite." Also who is the Compliance Monitor intended to be.
Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before performance is assumed to be at the 'zero' infractions level for the purpose of determining an appropriate sanction. The			

Question #7			
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FERC has determined that a 'reset' time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format.There are other forms of audits, for example "table-top" audits. The term "on-site" audit refers to the audit cycle. Some registered entities are on a 6-year audit cycle and others are on a three-year audit cycle. FERC has specified an "on-site" audit be performed on either a 3 or 6 year audit cycle depending on the registration of the entity. RC, BA and TOP will be audited at a minimum of 3 years. The use of the term Compliance Enforcement Authority (CEA) relates to the "Compliance Monitor" referred to in the functional model. The definition of CEA is: NERC or the Regional Entity in their respective roles of monitoring and enforcing compliance with the NERC Reliability Standards, as defined the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". NERC as the ERO is the Compliance Enforcement Authority as designated by FERC. NERC has delegation agreements with the regional entities, which defines their role as a compliance enforcement authority. Both NERC and the regional entity are responsible for monitoring compliance.			
Manitoba Hydro		☑	The Violation Security Levels are too complex to follow.
Response: The Violation Severity Levels were revised to reflect the revised requirements and the revised format.			
MISO Stakeholders		☑	We have the following issues and concerns: 1. Doesn't the Compliance Monitoring Period and Reset of one-month make the annual training requirement ineffective? Since it is reset every month, can you ever really measure if 32 hours have provided? It seems that it should not be reset each month. 2. What is the justification for retaining documentation more than 3 years. Three years is generally the longest a standard requires for data retention unless there is a violation. There should be strong justification for this. We can't fathom what it is. 3. Section 1.4 should be completely removed. It is written in a way that would require the regional entity to include this standard in their annual Compliance Monitoring and Enforcement Program every year and dictates to the region how compliance will be monitored. Isn't this up to the region? It also duplicates the requirement for a compliance audit every three years. It does not need to be repeated here.
Response: 1. The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before			

Question #7			
Commenter	**Yes**	**No**	**Comment**
performance is assumed to be at the 'zero' infractions level for the purpose of determining an appropriate sanction. The FERC has determined that a 'reset' time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format. 2. This data retention time frame was changed to reflect the compliance audit cycles. The registered entity must keep data available since the last audit for the compliance monitor to review. Additionally, the compliance enforcement authority is responsible to retain its audit data for one audit cycle – so that if the compliance enforcement authority is auditing an entity that is subject to audit every three years, the compliance enforcement authority must keep that audit data for at least three years – similarly if a compliance enforcement authority is auditing an entity that is subject to audit once every six years, the compliance enforcement authority must keep that audit data for at least six years. 3. Additional Compliance Information (D1.4), identifies the method or methods the compliance enforcement authority will use to assess compliance. All methods of compliance monitoring are listed in this section of the standard. This is outlined in the "Standards Drafting Team Guideline" on the NERC Website. Now that NERC is the ERO and there are delegation agreements in place between NERC and the Regions, the Regions are aiding NERC in implementing the NERC Compliance Monitoring and Enforcement Program.			
MRO			The term Compliance Enforcement Authority (CEA) needs to be defined as it seems this is a previously undefined entity. Why not just say Regional Entity?
Response: The use of the term Compliance Enforcement Authority (CEA) relates to the "Compliance Monitor" referred to in the functional model. The definition of CEA is: NERC or the Regional Entity in their respective roles of monitoring and enforcing compliance with the NERC Reliability Standards, as defined the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". NERC as the ERO is the Compliance Enforcement Authority as designated by FERC. NERC has delegation agreements with the regional entities, which defines their role as a compliance enforcement authority. Both NERC and the regional entity are responsible for monitoring compliance. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format.			
SPP ORWG		☑	There is an inconsistency between the data retention requirement in D1.3 and the on-site review requirement in D1.4. We would suggest deleting the phrases '…for four years, or…' and '…, whichever is greater.' in the first sentence of D1.3. Both time period requirements would then be based on the last on-site audit.
Response: Agree. D1.3 will be changed to reflect the compliance monitoring period. The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format.			
WECC OTS		☑	OTS does not agree with the Compliance Monitoring Process in the revised standard and has several questions.

Question #7			
Commenter	**Yes**	**No**	**Comment**
			D.1.2 What is the compliance monitoring period and when does the reset period begin if training is an annual requirement? D.1.3 is referencing data retention; a question arises over "mitigation plans". Who does it apply to, the entities program or the operator? We also question the four year data retention, what is the purpose since it is counter to D.1.4 requirement of a Compliance Audit every three years.

Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now entities are on at a minimum, a 6-year audit cycle and others are on a three-year audit cycle. The reset time frame is the time frame before performance is assumed to be at the 'zero' infractions level for the purpose of determining an appropriate sanction. The FERC has determined that a 'reset' time frame cannot be any longer than a month. The compliance monitoring period and reset timeframe were linked to an older version of the sanctions table, and have no relevance to the sanctions table currently in use.

The SPT SDT revised the Compliance Monitoring section to be consistent with the revised content and format.

The definition of a Mitigation Plan is: An action plan developed by a Registered Entity to (i) correct a violation of a Reliability Standard and (ii) prevent re-occurrence of the violation. A Mitigation Plan is required whenever a Registered Entity violates a Reliability Standard as determined by any means including Compliance Enforcement Authority decision, Settlement Agreement, or otherwise. This is defined in the Compliance Monitoring and Enforcement Program. The Compliance Monitoring and Enforcement Program (CMEP) can be found on the NERC website, under Compliance, open the "Uniform CMEP document". FERC has approved the CMEP. Mitigations plans address compliance violations, whether self reported, during an on-site audit, etc. Once an alleged violation is confirmed by the regional entity (RE), the registered entity will submit a mitigation plan to it's RE. The RE will approve or disapprove the mitigation plan. The RE submits the mitigation plan to NERC for approval. Once NERC approves, the plans are reported to FERC. The RE will track the status of all mitigation plans with the registered entity.

The data retention section of the standard was revised and no longer references "mitigation plans" – in the revised standard, if the responsible entity is found to be noncompliant, that entity must keep evidence related to the noncompliance until found compliant.

This data retention time frame was changed to reflect the compliance audit cycles. The registered entity must keep data available since the last audit for the compliance monitor to review. Additionally, the compliance enforcement authority is

Question #7			
Commenter	**Yes**	**No**	**Comment**
responsible to retain its audit data for one audit cycle – so that if the compliance enforcement authority is auditing an entity that is subject to audit every three years, the compliance enforcement authority must keep that audit data for at least three years – similarly if a compliance enforcement authority is auditing an entity that is subject to audit once every six years, the compliance enforcement authority must keep that audit data for at least six years.			

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

Summary Consideration:

Most commenters did not agree with the Violation Severity Levels for each requirement in the revised standard, expressing concern that they were too excessive and too cumbersome to understand and implement. The SPT SDT revised all of the VSLs based on the VSL Development Guidelines Criteria, the revised requirements, and industry feedback.

Question #8			
Commenter	**Yes**	**No**	**Comment**
Ameren		☑	Training should not be Severe or HIgh, those should be reserved for direct links to reliability.
Response: The VSLs are used to identify 'how badly' an entity missed complying with a requirement. An entity that does not make any attempt to meet the specified performance of a requirement has a 'severe' violation severity level and an entity that tries to comply with a requirement and comes very close to being fully compliant has a 'lower' violation severity level. Violation Risk Factors (VRFs) are used to assess the impact to reliability of violating a requirement.			
Florida Power & Light		☑	I do not feel that any VSL should be severe or high in relation to a training program.
Response: The VSLs are used to identify 'how badly' an entity missed complying with a requirement. An entity that does not make any attempt to meet the specified performance of a requirement has a 'severe' violation severity level and an entity that tries to comply with a requirement and comes very close to being fully compliant has a 'lower' violation severity The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement.			
FRCC		☑	FRCC does not feel that any VSL should be severe or high in relation to a training program. D2.4.3 - Grammatically incorect. Second paragraph should end " training has not BEEN provided annually."
Response: The VSLs are used to identify 'how badly' an entity missed complying with a requirement. An entity that does not make any attempt to meet the specified performance of a requirement has a 'severe' violation severity level and an entity that tries to comply with a requirement and comes very close to being fully compliant has a 'lower' violation severity The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. The format of the VSL Section has been revised, as well as D2.4.3.			
LCRA		☑	See #4.
Response: The SPT SDT revised the requirements based on industry comments.			

Question #8			
Commenter	**Yes**	**No**	**Comment**
NYISO		☑	The risk factor should be LOW for R2. There is no risk to reliability if the mismatch does not result in reliability impacts in real-time operation. Real time reliability standards are addressed in other documents. If there are tasks that fall below expectations that do not effect system reliability as measured by NERC standards, then their impact on reliability is low.
Response: The VSLs are used to identify 'how badly' an entity missed complying with a requirement. An entity that does not make any attempt to meet the specified performance of a requirement has a 'severe' violation severity level and an entity that tries to comply with a requirement and comes very close to being fully compliant has a 'lower' violation severity. Violation Risk Factors (VRFs) are used to assess the impact to reliability of violating a requirement. The SPT SDT believes that the VRFs for this standard are consistent with the VRF definitions. The BES company-specific reliability-related task list that must be developed in Requirement 1 is for all reliability-related tasks so it does not include BES tasks that are not reliability-related.			
OVEC		☑	Generally, the whole violation severity level section is far too cumbersome and verbose to understand and implement. Specifically, for Section 2.1.3 what if the entity did not find it necessary to add or remove any topics from the list? Why is that a violation? The section seems to indicate that the list has to have items constantly removed or added to have no violation occur. For section 2.2.2 what is meant by the addition of the word "capability?" For section 2.2.3, if the 32 hours of training is not included in Attachment B then either Attachment B needs revised or deleted or the continuing education hours program also used to identify emergency operations courses needs revised. Suggest remove 2.2.3 entirely or remove the words, "or sytem restoration", and "but did not include training in subject areas listed in Attachment B." Section 2.3, the bulleted items seem to read as requirements rather than as measures. Section 2.3.2.1, again, what is meant by the addtion of the word "capability?" Section 2.3.3.1, this section reads as a requirement rather than as a measure.
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. Requirement 3 has been revised and the language for adding and removing topics has been deleted. The SPT SDT moved Attachment B so that it is no longer part of a requirement but is a Reference Document for this standard.			
PHI		☑	PHI feels the wording of the Violation Severity Levels is confusing. Lower does not seem reasonable - If an entity has reviewed the list, agrees with it completely and has nothing to add, they would appear to be in violation. Similarly Moderate seems to be saying that if an entity has started creating a list of all reliability related tasks but hasn't finished it, has identified training but hasn't scheduled it or has given so called EOP training but not from topics on Attachment B and done nothing else--they warrant a Moderate violation. But, if they have done almost everything but not quite met the requirement, they

Question #8			
Commenter	**Yes**	**No**	**Comment**
			warrant a High violation. We are sure this is not the way these are meant to be understood. Perhaps starting with the Severe Violations and working down to moderate would be a better way to delineate what a moderate and lower violation would look like.
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. Requirement 3 has been revised and the language for adding and removing topics has been deleted. The SPT SDT moved Attachment B so that it is no longer part of a requirement but is a Reference Document for this standard.			
SMUD	☑		2.2.2 What tasks should be reviewed? Every task associated with each operating position or BES company specific reliability issues? 2.2.3 Regarding attachment "B" – Does this require all tasks listed or only selected topics? 2.3.2 Should this be limited to BES company specific reliability tasks. 2.1.3 Should read "The responsible entity did not add or remove topics from the Emergency Operations Topics as provided in attachment "B" that apply to their organization." Severity levels may be too excessive.
Response: In response to your comments on 2.2.2 and 2.3.2, the SPTSDT combined R1 and R2 to clarify the requirement. The SPT SDT deleted the VSLs this requirement. The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. Requirement 3 has been revised and the language for adding and removing topics has been deleted. The SPT SDT moved Attachment B so that it is no longer part of a requirement but is a Reference Document for this standard.			
APS		☑	Based on your definitions, the problem descriptions written for each of the four severity levels will ALL constitute "Severe" violations. For example, Item 2.1.3 lists topics from the EO list that were not added/removed when applicable, which constitutes a failure of the Analysis process and a failure of the Evaluation process too, because you didn't detect the problem and fix it. Since two phases of SAT were not done, this condition automatically meets the definition of 2.4 as "Severe". The same with item 2.2.1 and 2.3.1. This area needs work.

Question #8			
Commenter	**Yes**	**No**	**Comment**
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. The SPT SDT removed Attachment A and revised the VSLs for Requirement 1.			
Santee Cooper		☑	The standard should not dictate how a training program should be implemented as implied by 2.3.1. Severe Level for the 32 hours of EOPs would be that no training was provided to any of the operators, High would be that some training was provided but not all 32 hours or several operators did not complete all 32 hours. Moderate would be that 32 hours were provided but one operator did not complete or the training did not include drills, exercises, or simulations. If one operator does not complete 32 hours of EOPs training as written in 2.3.3, it should be a Moderate Violation Severity Level rather than a High Violation Severity Level. The violation severity levels associated with the other requirements aren't appropriately graduated either.
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. The SPT SDT modified the VSLs for Requirement 3 such that they are based on the percentage of System Operators that completed 32 hours of emergency operations training.			
Avista		☑	Disagree based on SAT requirement.
Response: In FERC Order 693 "the Commission (FERC) directs that NERC submit a modification to PER-002-0 that uses the SAT methodology in its development of new training programs" . Requirement 1 identifies the phases of an SAT process that must be included in the development of the training. The SPT SDT revised the VSLs for Requirement 1.			
Entergy (1)		☑	VSL 2.2.1 contains the statement that if the entity violates R1.1, the entity is also in violation of R1. We believe this is being penalized twice for the same infraction and should be deleted. Item 2.2.3 states "but did not include training in the subject areas listed in Attachment B". The Requirement R3.1 is that Attachment B is modified by the BA, TOP or RC. Therefore, this VSL should be changed to "... listed in R3.1.1". Due to the formating of the VSL documentation it is difficult to be sure what are the intended VSLs of section 2.3.1, 2.3.2, 2.3.3, and 2.4.1.1. For instance, VSL is High in 2.3.2 for not performing an assessment. Is the VSL also High for section 2.3.2.1 which

Question #8			
Commenter	**Yes**	**No**	**Comment**
			states the "entity has not identified training required"? Or, is 2.3.2.1 instead of 2.3.2? Again, the Severe VSL identified for 2.4.1 has three parts identified as "OR". However, there is an additional reference 2.4.1.1 which is part of 2.4.1. Should there be an "AND", or an "OR" infront of 2.4.1.1? We suggest VSLs for the 32 hour training in R3, and the VSLs for R4 are OK. We also suggest the VSL criteria be redistributed for each of the Requirements R1 and R2. We think 2.4.2, R2, an entity who has "not performed an assessment which includes … to each task …" should have a much lower VSL applied to it than an entity that does " not have a SAT program" at all. Both of these criteria are considered Severe in the draft standard. Starting with Severe, we agree Severe should be assigned to having NO SAT program, 2.4.1 for R1, and the criteria that the entity has not performed an assessment of operator capabilities, 2.4.4 for R4. These are the only two actions that rise to the level of Severe. We suggest all the criteria for R1 and R2 be moved down one level, from Severe to High, from High to Moderate, and Moderate to Lower, except the criteria as noted above.
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. Requirement 3 has been revised and the language for adding and removing topics has been deleted. The SPT SDT moved Attachment B so that it is no longer part of a requirement but is a Reference Document for this standard.			
FirstEnergy		☑	The process for establishing VSLs is presently being vetted through the industry for the 83 FERC approved standards. We believe it is prudent to let that process take its course so that SDTs presently working on revised or new standards can reference the new format in establishing VSLs. The violation severity levels as written are interlaced making it difficult to determine the violation severity level that pertains to each requirement. The violation severity levels should be listed by requirement. In addition the following revisions to the wording are suggested: Item 2.2.2 should be revised to state, "The responsible entity has determined training

Question #8			
Commenter	**Yes**	**No**	**Comment**
			required based on the mis-match between acceptable and actual performance capability but has not included this training in its current schedule." Item 2.2.3 should be revised to state, "The responsible entity annually provided at least 32 hours of training on emergency operations or system restoration but the training did not include the subject areas listed in Attachment B." Item 2.3.3 should be revised to state, "The responsible entity provided to its system operators at least, 32 hours of emergency operations or system restoration training, annually, but not all its System Operators have completed or evidence shows all of its System Operators will not have completed the required annual training." Item 2.4.1 should be revised from, "The responsible entity does not have a SAT program for its system operators" to "The responsible entity has not used the SAT process to develop its training program." Item 2.4.2 states, "The responsible entity has not performed an assessment which includes identification of measurable or observable criteria for desired performance to each task for the determination of the training needs for two of its system operating position." Looking past the fact that there is no requirement to identify measurable and observable criteria for desired performance, the severity level as written appears to state that I cannot get a severe violation severity raking if I only have one operator position. This should be revised to state, "… training needs for all of its system operating positions." Item 2.4.3 paragraph 2 should be revised to state, "The responsible entity has provided 32 hours of emergency operations and system restoration training but the training has not been provided annually."
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. The VSLs for each requirement are presented in a table format. Requirement 3 has been revised and the VSLs for this requirement.			
Quality Training Systems	☑		See detailed comments below relating to Violation Level 2.2.1 requiring use of the Generic Task List provided as an attchment to the Standard.
Response: The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing their task list,			

Question #8			
Commenter	**Yes**	**No**	**Comment**
as described in R1. The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement.			
TAL		☑	No VSL should be high or severe for a requirement that is not a real time requirement. D2.4.1.1 - What if the entity reviewed Attachemnt A and did not identify anything else that was performed? What if they did identify several other items, but missed only one. These should not be violations. If the entity made a good faith effort, it should be compliant. The selection of a task from the list, or adding it to the list, is subjective for the entity. As such, how can a compliance team come in and apply another subjective criteria to the list? D2.4.3 - Grammatically incorect. Second paragraph should end " training has not BEEN provided annually."
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing their task list, as described in R1. The SPT SDT revised the VSLs for Requirement 3.			
Madison G&E		☑	a) In 2.1.3, under VSL, it is possible that the list of Emergency Operations Topics exactly fits an entity, and such entity should not be penalized for that. In 2.2.3, this implies that ALL of the subject areas must be met annually. If this is not the intent, it should be clarified. If this is the intent, this appears to be too demanding for each operator to meet all 42 subject areas in 32 hours. b) VSL's need to be vetted through the electric industry or drop them all together. Since a training violation does happen during realtime, the VSL should be low.
Response: a) The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. Requirement 3 has been revised and the language for adding and removing topics has been deleted. The SPT SDT moved Attachment B so that it is no longer part of a requirement but is a Reference document for this standard. VSLs are currently being vetted through the stakeholder process. They were published in the ERO Sanctions Guidelines. The industry is being asked to provide feedback through the request for comments on the standards. The VSLs are used to identify 'how badly' an entity missed complying with a requirement. An entity that does not make any attempt to meet the specified performance of a requirement has a 'severe' violation severity level and an entity that tries to comply with a			

Question #8			
Commenter	**Yes**	**No**	**Comment**
requirement and comes very close to being fully compliant has a 'lower' violation severity level. Violation Risk Factors (VRFs) are used to assess the impact to reliability of violating a requirement.			
Entergy (2)		☑	In general, the VSLs are extremely complex and take up more of the standard than the actual requirements, measures and compliance sections. Condense and simplify.
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement.			
ERCOT		☑	This part of the standard is not clean and simple. Plus, it's an administrative standard and should not carry moderate to high violation levels. Also, lack of documentation should be a low violation. High and Severe violations should be reserved for entities who do not have training programs, or their programs are not maintained with adequate staff.
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement.			
Southern		☑	Under Violation Severity Levels, it is not obviously apparent that missing two of the five phases of a SAT should have the same severity as not having a SAT program at all. There should be some differences in violation severity between the two.
Response: The SPT SDT agrees with your statement and has revised the VSLs for Requirement 1.			
Allegheny Power			
AEP		☑	2.2.1 - Renumbering of R1.1 and making it R2, thus separating the reliability task identification requirement from the SAT requirement, would be an improvement, and would allow two different violation security levels. 2.3.1 & 2.4.1 - Violation of SAT should be "lower", not "high" or "severe". An entity may produce adequate training with proper performance results without using SAT. Many entities produce qualified operators today without SAT. SAT (ADDIE) should be a guide attached to the standard or as a reference document, but should not be the standard. The violation should be on "not performing training for identified tasks", rather than how you created the training. If training produces the desired results, how you did it should not be the measure, but rather, the measure should be satisfactory operator performance capability to perform. 2.3.1.1 - the "Note" refers to R1.2, but there is no R1.2.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related			

Question #8			
Commenter	**Yes**	**No**	**Comment**
tasks. Each applicable Entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. The SPT SDT revised requirement 1 such that entities must use a Systematic Approach to Training and not necessarily a specific. The revised Requirement 1 identies the key components that must be included in any systematic approach to developing training. The VSLs are used to identify 'how badly' an entity missed complying with a requirement. An entity that does not make any attempt to meet the specified performance of a requirement has a 'severe' violation severity level and an entity that tries to comply with a requirement and comes very close to being fully compliant has a 'lower' violation severity The SPT SDT has revised the VSLs for all of the requirements.			
ATC		☑	ATC does not agree with the assignment of High (Violation Severity Level) for a failure to use one of the five phases of a SAT. In practice if an entity does not use one of the five phases of a SAT in one training program then it will be assessed a high violation severity level. ATC believe that this designation is too great for the violation. NERC needs to look at the number of training programs and to the extent of the failure. Did every training program fail to include one of the five phases or was this only in a small minority of the programs. We would ask that the SDT develop more reasonable violations severity levels for this standard.
Response: The SPT SDT agrees with your statement. The SPT SDT revised the VSLs for Requirement 1 such that each VSL specifically identifies the components of an SAT process. Requirement 1 includes all training programs that addresses the entity's reliabilty-related task list. Each entity determines the number of training programs that it uses to provide training to their system operators.			
BCTC		☑	The way the Violation Severity Levels are written are too complicated to follow and many are open to interpretation. As an example the words for the High level say in part "…..is missing one or more significant elements". what does the word significant mean to the person who is reading this……significant to whom, the audit team; too vague? We do not agree with any of the words written for the severity levels; the standard and requirements are short on words and severity levels have explicit severity levels that are not detailed in the requirements. We again want to say that this will be a huge onerous task to place on any entity based on the implementation plan and we cannot support it.
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement.			
CAISO		☑	The Compliance elements of this standard should be postponed until the requirements

Question #8			
Commenter	**Yes**	**No**	**Comment**
			are agreed to. We note that a SEVERE VSL is applied for missing evidence of using two phases of the SAT; as well as applying a SEVERE VSL for not having a program at all. This would result in an organization that inadvertently is missing evidence being held to the same VSL level as an organization that consciously has no program at all.
Response: The SPT SDT revised the requirements and the VSLs and is seeking industry feedback. The Drafting Team Guidelines describe the process the team uses to develop the standard, which includes developing requriements and VSLs at the same time and then posting the standard for industry feedback. The SPT SDT agrees with your statement about the R1's VSLs and has revised them based on the revised requirement.			
CenterPoint			
NIPSCO	☑		
NPCC RCS		☑	Requiring a training program subject to following 5 Systematic Approach to Training (SAT) principles seems overly perscriptive and why would it be a severe violation severity level not to follow these or subset thereof. NPCC Participating members can accept 5 training principles but the entire SAT seems unnecessary. If NERC intends to adopt the SAT, in its entirety, it needs to clarify and educate the industry before incorporating it into a standard.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. The SPT SDT has prepared a reference document that provides several SAT resources. The Implementation Plan uses a phased-in approach to allow sufficient time to aquire training on using a systematic approach to developing training.			
PG&E (1)			
PG&E (2)		☑	The violation severity levels are to complicated. The violation severity levels are extremely defined in comparison the requirements. To comply with the violation severity levels would be a huge onerous task on any entity based on the implementation plan.
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. The Implementation Plan allows sufficient time (3 years+) to become compliant with the standard.			
PJM		☑	The Compliance elements of this standard should be postponed until the requirements are agreed to.

Question #8			
Commenter	**Yes**	**No**	**Comment**
			PJM would note that a SEVERE VSL is applied for missing evidence of using two phases of the SAT; as well as applying a SEVERE VSL for not having a program at all. This would result in an organization that inadvertently is missing evidence is held to the same VSL level as an organization that consciously has no program at all.
Response: The SPT SDT revised the requirements and the VSLs and is seeking industry feedback. The Drafting Team Guidelines describe the process the team uses to develop the standard, which includes developing requriements and VSLs at the same time and then posting the standard for industry feedback. The SPT SDT agrees with your statement about R1's VSLs and has revised them based on the revised requirement.			
SRP		☑	The severity levels are too extreme. Section 2.3.1 states a HIGH severity for missing one out of five phases of the SAT process. An entity that is using four of the five, which is an 80% use rate, should not be penalized with a HIGH severity violation. The severity for this ocurrence should be reduced to at least a MODERATE. Section Section 2.4.1 states a SEVERE severity for missing two out of five phases of the SAT process. An entity that is using three of the five which is an 60% use rate should not be penalized with a SEVERE severity violation. The severity for this ocurrence should be reduced to a HIGH severity. The SEVERE severity should be used for missing three of the five SAT phases. In summary: Moderate Severity: Missing one of the five SAT phases. High Severity: Missing two of the five SAT phases. Severe Severity: Missing three of the five SAT phases.
Response: The SPT SDT agrees with your statement about R1's VSLs and has revised them based on the revised requirement.			
SDG&E		☑	The requirement for emergency training is in multiple standards (e.g. PER-002-0 R4. This then leads to the potential for multiple violations for the same deficiency. This training requirement should only be in one standard.
Response: Upon regulatory approval, PER-005 replaces PER-002. The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to the Reliability Standards Work Plan 2008-2010 that consolidates all training-related requirements into the PER standards.			

Question #8			
Commenter	**Yes**	**No**	**Comment**
We Energies		☑	Many of the violation severity level statements need to be simplified/clarified (similar to M1). 2.2.3 - R3.1 requires the training be from topics in Attachment B, so there would be no emergency training if the training was not from Attachment B topics. 2.3.3.1 The current wording of R3.1 does not allow training in principles, only drills, exercises, or simulations. See question #11. 2.4.3 The statement after OR is unnecessary. If 32 hours were not provided annually then the first statement applies.
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. The SPT SDT has moved Attachment B so that it is no longer part of a requirement but is a Reference Document for this standard and revised R3 and the requriements VSLs.			
Garland		☑	Same answer #7.
Response: The SPT SDT revised the requirements based on industry feedback.			
HQT		☑	Requiring a training program subject to following 5 Systematic Approach to Training (SAT) principles seems overly perscriptive and why would it be a severe violation severity level not to follow these or subset thereof. NPCC Participating members can accept 5 training principles but the entire SAT seems unnecessary. If NERC intends to adopt the SAT, in its entirety, it needs to clarify and educate the industry before incorporating it into a standard.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. The SPT SDT has prepared a reference document that provides several SAT resources. The Implementation Plan uses a phased-in approach to allow sufficient time to aquire training on using a systematic approach to developing training.			
IESO		☑	(1) 2.1.3 See our comment under Q6 that is related to this violation severity level. (2) We are unable to offer comments on the VSLs associated with not following or missing any steps in the SAT program. We not do see adopting and following a SAT approach to develop a training program should be a requirement. Please see our

Question #8			
Commenter	**Yes**	**No**	**Comment**
			comments under Q11.
Response: (1) and (2) In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable Entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. The standard is addressing reliability-related tasks performed by the three applicable entities. The SPT SDT has revised the requirements and the associated measures. The SPT SDT revised R3 such that the subrequirements were eliminated.			
ISO New England		☑	Requiring a training program subject to following 5 Systematic Approach to Training (SAT) principles seems overly perscriptive and why would it be a severe violation severity level not to follow these or subset thereof. ISO-NE can accept 5 training principles but to require only SAT seems unnecessary. This goes against the principle pf telling the industry WHAT to do, not HOW to do it.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement.			
Manitoba Hydro		☑	The Violation Security Levels are too complex to follow.
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement.			
MISO Stakeholders		☑	In general, we do not support the application of any violation severity levels because the VSL guideline has not been vetted through the industry. We do have the following specific issues and concerns as well. 1. The VSLs try to cover so many scenarios that they are confusing. We had enough trouble understanding them that we are concerned we have not identified every specific issue with them. 2. In the Moderate Violation Severity Level, section 2.2.2 creates a de-facto requirement on the training schedule because the training based on the mis-match in performance is required to be in the current schedule. What if a responible entity's schedule is updated every quarter and only goes out 3-6 months? They could still train on this in months 7-

Question #8			
Commenter	**Yes**	**No**	**Comment**
			12 but this compliance element would find them in violation because it was not in their "current schedule". 3. We do not agree that a lack of documentation should be considered a high violation as described in section 2.3.1 of the High VSL. Lack of documentation should be a lower violation. 4. Sections 2.3.1.1, 2.4.1.1 and 2.2.1 duplicate one another but are in different VSL.
Response: The VSLs for this standard are being vetted through the industry through the standard development process. 1. The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. 2. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update their task list at least annually and then develop the necessary training to address the updated or new tasks. 3. The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. 4. The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement.			
MRO		☑	Too complex. Don't need to list five phases again and again.
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. The SPT SDT agrees with your statement and has revised the VSLs for Requirement 1.			
SPP ORWG		☑	The proposed severity levels are too complicated and need to be simplified.
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement.			
WECC OTS		☑	WECC OTS feels the violation severity levels are to complicated. The violation severity levels are extremely defined in comparison the requirements. To comply with the violation severity levels would be a huge onerous task on any entity based on the implementation plan.
Response: The SPT SDT has considered industry feedback and the definitions for each of the VSL levels and has revised the VSLs for each requirement. The Implementation Plan uses a phased-in approach to allow sufficient time to become compliant with the standard.			

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

Summary Consideration:

Some commenters did not support the Implementation Plan. Some commenters suggested the implementation plan should be shortened, while others suggested it should be lengthened. The SPT SDT considered stakeholder comments on Version 1 and Version 2 of the standard and believes the Implementation Plan posted with the second draft of the standard reflected stakeholder consensus. However, the SPT SDT revised the Implementation Plan to allow additional time for entities to comply with the revised Requirement R3 which now requires that emergency operations training include the use of a simulator.

The revised implementation plan includes the following proposed effective dates:

> Requirement R1, Requirement R2, and Requirement R3 shall become effective 36 months after the first day of the first quarter following applicable regulatory approval or, in those jurisdictions where regulatory approval is not required, the Reliability Standard becomes become effective 36 months after the first day of the first quarter after Board of Trustee adoption.

Question #9			
Commenter	**Yes**	**No**	**Comment**
Ameren	☑		
Florida Power & Light	☑		
FRCC	☑		
LCRA		☑	If I started on this today, it would take me longer than that to create all these new requirements. In order to meet this requirement, I would have to drop all other responsibilities.
Response: The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
NYISO		☑	R3 is in effect now under PER-004. There is no need for a phase in. On the other hand R3 has no place in a systematic approach to training and should be deleted. If, and only if, R1, R2, R4, Appendix A and Appendix B are rewritten along the lines suggested in this comment form, the effective dates would be viable.
Response: The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			

Question #9			
Commenter	**Yes**	**No**	**Comment**
NERC's response to Blackout Recommendation 6A recommended 5 days of emergency operations training, which was subsequently clarified to mean 32-hours. The SPT SDT is not aware of the justification that was used for selecting 32 hours. The SPT SDT revised the requirements, deleted Attachment A, and moved Attachment B so that it is no longer part of a requirement but is a Reference Document for this standard.			
OVEC		☑	The implementation plan should be simplified to allow for clearer understanding and easier tracking. Suggest that R3 become effective immediately upon regulatory approval since the 32 hours of annual emergency operations training is currently required in PER-002, R4. Suggest that R2 become effective January 1 in the first year following regulatory approval because an effective date that would allow for less than a full calendar year of implementation does not give an entity time to thoroughly assess annually the training needs of each System Operator position. Suggest that R1 and R4 become effective January 1 the second year following regulatory approval. The suggested times balance the timely implementation of the standard to maintain and enhance reliability, while allowing entities ample time to achieve compliance with the requirements, and is a simpler and more straight forward implementation plan that is easier to understand and track.
Response: The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
PHI	☑		
SMUD	☑		
APS		☑	See Item 4 above.
Response: The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update their task list at least annually and then develop the necessary training to address the updated or new tasks. Section 5.2 has been removed from the revised standard.			
Santee Cooper	☑		
Avista	☑		
Entergy (1)		☑	R3, 32 hours of training, may be effective the first day of the first quarter but compliance with that requirement will take up 10 weeks to train all the system operators due to shift rotations and training schedules. Please make this change for compliance. The timing for implementation of the other requirements seems out of order. First the

Question #9			
Commenter	**Yes**	**No**	**Comment**
			SAT needs to be performed, R1. Then, the capabilities of the operators need to be verified R4 before a mis-match can be performed R2, from which training needs are identified and implemented. We suggest it will take 18 months to complete R1, followed by 18 months to complete R4, and finally a third 18 months to complete R2.
Response: The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
FirstEnergy		☑	
Quality Training Systems	☑		
TAL	☑		
Madison G&E		☑	a) Entities have established training programs per Regulatory Approved Standards. Proposed Effective Date, 5.1 is the only parlell, carry over requirement from a Regulatory Approved Standard (PER-002-0, R4) to this proposed standard. This time frame is workable. b) Proposed Effective Date, 5.2 is unclear (see comments of 2.a, above), so an effective date can not be proposed yet. c) Proposed Effective Date, 5.3 for the proposed SAR contains over 370 tasks for operators and the time line is too aggressive. Registered Entities will need to be trained in the Systematic Approach to Training process, set up their own processes, convert established training to the SAT process, create new training and start to give training to System Operators. Budgets will need to be forecasted, personnel will need to be tasked with the training process (most companies have a small training department), this will take an extream amount of time and cost are unknown at this time.
Response: The SPTSDT combined R1 and R2 to clarify the requirement, therefore Section 5.2 has been deleted. The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
Entergy (2)		☑	PER-005-1 Proposed effective dates: R1 & R2 should be implemented simultaneously, since R2.2 cannot be performed until R1.1 is completed. However, 36 months to have a

Question #9			
Commenter	**Yes**	**No**	**Comment**
			training program implemented is reasonable.
Response: The SPTSDT combined R1 and R2 to clarify the requirement, therefore Section 5.2 has been deleted.			
ERCOT		☑	R1, R2 & R4's timeline should have an additional time, at least another year, added to allow for budget cycles, hiring & traininig trainers. Additional personel will be required in many cases and these positions will need to be budgeted before they can be filled. Once filled, then the work to develop a training program begins. Depending on the approval date, a company's budget cycle may be well underway and beyond the point of change and thus delay their ability to succeed within the current timelines.
Response: The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
Southern	☑		
Allegheny Power		☑	The implementation schedule is too aggressive with regards to Requirement 2. Requirements 1 and 4 should be implemented completely before Requirement 2. A more reasonable implementation schedule is 18 months for Requirement 1 followed by 18 months for Requirement 4 and then an additional 18 months for Requirement 2.
Response: The SPT SDT combined R1 and R2 to clarify the requirement, therefore Section 5.2 has been deleted. The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
AEP		☑	R2 – We agree with the 36 months but recommend the implementation time for R2 be changed from 18 to 36 months as R2.2 is conflicting with R1 implementation time. R2.2 - This part of the standard requires the assessment to include analysis of new or revised tasks for the specific company/entity and job position, which is specified for task identification in requirement R1.1. This is conflicting since the implementation plan time for R2 is 18 months, and the implementation time for R1, to have the task list identified with comparison to the reliability tasks of Attachment A, is 36 months.
Response: The SPTSDT combined R1 and R2 to clarify the requirement, therefore Section 5.2 has been deleted.			
ATC	☑		
BCTC		☑	While we appreciate the time frames for implementation of some requirements at 18 months and 36 months would be helpful to allow implementation of these requirements we do not support the requirements as they are written as they are too onerous and not

Question #9			
Commenter	**Yes**	**No**	**Comment**
			achievable in the time frames without hiring many more staff and applying lots of money to the make it happen. So if we do not agree with the Requirements, we cannot agree to the time phases.
Response: The SPT SDT has revised the requirements.			
CAISO		☑	The Compliance elements of this standard should be postponed until the requirements are agreed to. We do not support this standard as written, and therefore do not agree with the implementation schedule at this time.
Response: The SPT SDT has revised the requirements. The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
CenterPoint		☑	CenterPoint Energy agrees with the implementation plan for R3; however, we disagree with the implementation plan for R1, R2, and R4. If PER-005 is modified to align itself with the other NERC training programs that certify system operator competency, we would agree with a three year implementation period.
Response: The implementation Plan reflects a 36 (or 3 year) month implementation. The SPT SDT is not aware of any NERC Training Program and that the NERC CE Program is not linked to a NERC standard, nor does it define system operator competency.			
NIPSCO		☑	Since the training program with not be completed until the end of the three year period, assessments of personnel could not begin until after the completion of this development.
Response: The SPT SDT has revised the requirements, including removing R2. The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
NPCC RCS	☑		
PG&E (1)			
PG&E (2)	☑	☑	The implementation plan would be acceptable if NERC can develop the Standard so that they are clear and specific.
Response: The SPT SDT has revised the requirements. The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			

Question #9			
Commenter	**Yes**	**No**	**Comment**
PJM		☑	The Compliance elements of this standard should be postponed until the requirements are agreed to. PJM does not support this standard as written, and therefore cannot agree to any implementation schedule at this time.
Response: The SPT SDT has revised the requirements. The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
SRP	☑		
SDG&E		☑	The implementation for R3 should allow an organization time to put any new training requirement into its regular training plan. Put that it needs to be included in the next years annual training program.
Response: The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
We Energies		☑	Implementation of R2.2 at the 18 month point requires that R1.1 (implemented in 36 months) be completed first.
Response: The SPTSDT combined R1 and R2 to clarify the requirement, therefore Section 5.2 has been deleted.			
Garland		☑	It is an unreal expectation that a small utility will have the resources to comply with the requirements stated in R2 and R4.
Response: The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
HQT	☑		
IESO		☑	We have a major difficulty with the standard as written. We are therefore unable to agree on the implementation plan.
Response: The SPT SDT has revised the requirements. The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
ISO New England	☑		
Manitoba Hydro	☑	☑	I think the plan is okay but if it has a medium risk factor then is that being understated and should we not be starting immediately.

Question #9			
Commenter	**Yes**	**No**	**Comment**
Response: The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
MISO Stakeholders		☑	If the standard were simplified, it could be phased in more quickly.
Response: The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
MRO	☑	☑	If there is really a MEDIUM risk to the system perhaps the implementation plan should be accelerated. On the other hand, the implementation schedule may be overly aggressive if significant modifications to the Job Tasks are required.
Response: The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
SPP ORWG		☑	Requirement 1 should be effective 18 months after the first day of the first quarter following regulatory approval and Requirements 2 and 4 should be effective 36 months after the first day of the first quarter following regulatory approval.
Response: The SPT SDT combined R1 and R2 to clarify the requirement, therefore 5.2 has been deleted. The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			
WECC OTS	☑	☑	The WECC OTS questions the implementation plan, when they do not agree with the current requirements. However, the implementation plan would be acceptable if NERC can develop the Standard so that they are clear and specific.
Response: The SPT SDT has revised the requirements. The SPT SDT has considered stakeholder comments on draft version 1 and Version 2 of the standard and believes the existing Implementation Plan for R1 and R2, as captured in Section 5 of the standard, reflects stakeholder consensus. The SPT SDT modified the effective date for R3 to allow entities time to comply with the requirement to use simulators in the emergency operations training, per FERC Order 693.			

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

Summary Consideration:

Several commenters identify conflict between the proposed standard and labor contracts due to lack of objectivity in the standard. The SPT SDT revised the requirements and the measures such that are objective, clear, and measureable. The SPT SDT cannot address labor union contract issues.

Question #10			
Commenter	**Yes**	**No**	**Comment**
Ameren		☑	
Florida Power & Light		☑	
FRCC		☑	
LCRA		☑	
NYISO		☑	
OVEC		☑	
PHI		☑	
SMUD		☑	
APS		☑	
Santee Cooper	☑		
Avista	☑		
Entergy (1)		☑	
FirstEnergy			FERC 693 (par. 1359) directive to include the Generator Operator has not been addressed by this standard.
Response: NERC Work Plan Project 2010-01, Support Personnel Training, is intended to determine the training needs of generator operators and operations and support staff with a direct impact on reliable operations of the bulk power system. A high-level description of the project can be found in the NERC Reliaibity Standards Development Plan: 2008-2010 (ftp://www.nerc.com/pub/sys/all_updl/standards/sar/FERC_Filing_Volumes_I_II_III_Reliability_Standards_Development_Plan_2008_2010.pdf).			
Quality Training Systems			No comment.

Question #10			
Commenter	**Yes**	**No**	**Comment**
TAL		☑	
Madison G&E	☑		a) In NERC's Reliability Standards Development Plan dated Nov 30, 2006 (pg 3 of 21), (pertaining to FERC Order 672) states "the Commission states that a proposed reliability standard must be designed to achieve a specific reliability goal and be clear and unambiguous regarding what is required and WHO is required to comply". The STD will need to rewrite Applicability 4.2, (use of the words "and their delegates") do to the ambiguous personnel requiring training other than certified system operators. b) R4.2 states the standard applies to System Operator positions listed under R4.1 and "their delegates who can directly, or through communications, impact reliability by producing a real-time response from the Bulk Electric Systyem". In NERC's Personnel Certification and Governance Committee (PCGC) Charter (approved May 2, 2007), Section 2, 1.a. includes that the PCGC sets the "requirements for personnel certification, maintaining certification, and recertification". The PER-005-1 SDT does not have the authority to require non NERC Certified personnel to be trained under a NERC Standard. The PCGC establishes who must be NERC Certified.
Response: a) The SPT SDT removed Section 4.2 from the revised standard. b) The SPT SDT disagrees with your statement. The approved SAR for this standard established the scope of this standard, not the PCGC.			
Entergy (2)		☑	
ERCOT		☑	
Southern		☑	The question should have stated: If yes, please explain in the comment area.
Response: The SPT SDT thanks you for your comment.			
Allegheny Power		☑	
AEP		☑	
ATC		☑	
BCTC		☑	
CAISO	☑		The lack of objectivity in these requirements will conflict with labor union contracts. In addition the draft standard does not meet NERC or FERC requirements regarding clarity and measurability; nor does the draft meet the FERC objection to fill-in-the-blank standards.

Question #10			
Commenter	**Yes**	**No**	**Comment**
Response: The SPT SDT has revised the requirements and the measures such that are objective, clear, and measureable. The SPT SDT cannot address labor union contract issues. The SPT SDT does not believe this standard is a fill-in-the-blank standard.			
CenterPoint			
NIPSCO		☑	
NPCC RCS	☑		The lack of objectivity in these requirements may conflict with labor union contracts. ie confidentiality issues of performance reviews.
Response: The SPT SDT has revised the requirements and the measures such that they are objective, clear, and measureable. The SPT SDT cannot address performance reviews or labor union contract issues.			
PG&E (1)			
PG&E (2)		☑	
PJM	☑		The lack of objectivity in these requirements will conflict with labor union contracts. In addition the draft standard does not meet NERC or FERC requirements regarding clarity and measurability; nor does the draft meet the FERC objection to fill-in-the-blank standards.
Response: The SPT SDT has revised the requirements and the measures such that they are objective, clear, and measurable. The SPT SDT cannot address labor union contract issues. The SPT SDT does not believe this standard is a fill-in-the-blank standard.			
SRP		☑	
SDG&E			
We Energies		☑	
Garland		☑	
HQT	☑		The lack of objectivity in these requirements may conflict with labor union contracts i.e. confidentiality issues of review.
Response: The SPT SDT has revised the requirements and the measures such that they are objective, clear, and measureable. The SPT SDT cannot address performance reviews or labor union contract issues.			
IESO		☑	
ISO New England	☑		The lack of objectivity in these requirements may conflict with labor union contracts (i.e. confidentiality issues of performance reviews).
Response: The SPT SDT has revised the requirements and the measures such that they are objective, clear, and measureable. The SPT SDT cannot address performance reviews or labor union contract issues.			

Question #10			
Commenter	**Yes**	**No**	**Comment**
Manitoba Hydro	☑		There may be issues with some unions and its agreements.
Response: The SPT SDT has revised the requirements and the measures such that they are objective, clear, and measureable. The SPT SDT cannot address performance reviews or labor union contract issues.			
MISO Stakeholders		☑	
MRO			(It seems the last sentence of this question is incorrectly phrased. Shouldn't "not" be replaced with "yes"?) There may be issues with existing union agreements.
Response: The SPT SDT has revised the requirements and the measures such that they are objective, clear, and measureable. The SPT SDT cannot address performance reviews or labor union contract issues.			
SPP ORWG	☑		Has the SDT taken into consideration dealing with bargaining units when conducting the assessments on individual System Operators. In some bargaining units, individual performance assessments have been eliminated.
Response: The SPT SDT has revised the requirements and the measures such that they are objective, clear, and measureable. The SPT SDT cannot address performance reviews or labor union contract issues.			
WECC OTS		☑	

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Question #11	
Commenter	**Comment**
Ameren	No comment.
Florida Power & Light	Overall,I am in support of the development of a training standard to ensure personnel responsible for the real time operation of the BES to meet minimum knowledge and competency levels. However, I would recommend that any training requirements noted in NERC Standards should be identified only in the System Personnel Training Standard. This standard should apply to System Operating Positions only - not by individual system operators.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to the Reliability Standards Work Plan 2008-2010 that consolidates all training-related requirements into the PER standards. The standard is consistent with the approved SAR, applicable to System Operators, not System Operating positions.	
FRCC	Overall, FRCC is supportive of the development of a training standard to ensure personnel responsible for the real time operation of the BES to meet minimum knowledge and competency levels. However, the FRCC recommends that any training requirements noted in NERC Standards should be identified only in the System Personnel Training Standard. How is a "new" employee handled? If I hire an operator and he gets NERC Certified in November (or later) I feel I should not have to complete all 32 hours of emergency training. This standard should be by position only - not by system operators.
Response: The SPT SDT has and will continue to work collaboratively with the System Restoration and Blackstart SDT to eliminate any duplication of training requirements in the two standards. The SPT SDT will suggest that NERC consider adding a new standard project to the Reliability Standards Work Plan 2008-2010 that consolidates all training-related requirements into the PER standards. The SPT SDT revised the condition for Requirement 3 from annually to every 12 months to allow for the situation of new hires late in the calendar year.	
LCRA	To recap, the creaters of this standard have done a good job. My problem is not so much with the standard itself, as it is with the completely unreal expectation that the resources, money, and time exist to do all of this.

Question #11	
Commenter	**Comment**
	Some further points: R.2- How are we supposed to accomplish this? Test each operator on each task anually? I spent 9 years in nuclear power operations and I did not get tested on each critical task the entire nine years. I was responsible for all critical tasks, but annually I was tested on a few randomly selected ones. That is a much better way to manage such a program. From the generic task list for Transmission: #5: Not performed by Transmission System Operators, this is done by support staff #18: Not performed by Transmission System Operators in ERCOT #27: Not performed by Transmission System Operators #45: Not performed by Transmission System Operators in ERCOT, this is done by support staff #61: What if your utility has no HVDC? #67: In ERCOT, Transmission System Operators do not redispatch generation. This function is performed solely by the QSE. The only case where this would not hold true would be a blackstart. #70, #71, #72, #73, #79, #81: Since ERCOT is a deregulated market none of these functions are performed by Transmission System Operators at LCRA. The standard mentions that a given organization is responsible for these generic tasks as well as any other self-identified ones. Use your common sense, if you give people the option of adding to their work load by adding elements to the list, basic human nature will lead people to not do so. Why would they want to create work for themselves when this standard would already be making their jobs incredibly burdensome? Conversely, if entities are allowed to drop some of the generic items off the list what you will see is individual utilities paring this last down to something manageable. What we have here is a proposal to implement a standard without, in my opinion anyways, a thorough assessment of its impact. The basic idea is sound-a mandate for a systematic approach to training. The devil is in the details. I believe there is no concept of the time and resources that exist in this industry on the part of those who created this standard. You can mandate it, but it does not meant that those of us in the positions of responsibility will get the money/resources it would take to implement such a massive undertaking. The smaller utilities would need real help in making this happen. If NERC is bent on pushing this standard through then it should step up to the plate with regional training, templates, standardized forms, etc-all the things that will be needed to make this happen. This new standard would amount to an unfunded mandate making compliance a very difficult proposition for those of us at the end of the pointy stick. In fact, I would personally consider moving into some other area out of training in order to not be liable.

Question #11	
Commenter	**Comment**
Response: The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4 (now R2). to clearly state that thecapability assessment is verified for each System Operator. The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1.	
NYISO	Requirement R1.2 should be deleted in its entirety. It mandates through "shall" that "all" the tasks in Attachment A be included in the company specific task list. Attachment A includes meaningless, redundant and poorly worded task definitions. If NERC wishes to create a separate document to aid entities in developing a company-list, that would be OK. But Attachment A, as written, is worthless and misleading definitions of tasks. The Attachment A has no place in a standards document unless each and every item on those lists is mandatory. Both Attachments A should be deleted or completely reworded. As written, it will never stand up in court as valid task definitions. Here are examples of poorly worded tasks from the NERC Generic Task Lists: Emergency Operations, which I will be mandated to include in my company specific task list Consider items 1-10 on that list. 1 Request emergency energy upon loss of a resource 2 Respond to capacity deficiency 3 Respond to loss of energy resources within allowable regional or pool timeframe 4 Prepare for a capacity emergency by bringing on all available generation 5 Prepare for a capacity emergency by postponing equipment maintenance 6 Prepare for a capacity emergency by scheduling emergency energy purchases 7 Prepare for a capacity emergency by reducing load 8 Prepare for a capacity emergency by initiating voltage reductions 9 Prepare for a capacity emergency by requesting emergency assistance from other systems

Question #11	
Commenter	**Comment**
	10 Schedule available emergency assistance with as much advance notice as possible given a capacity emergency The true tasks in these items have nothing to do with the causal event. Cutting out the phrase about "capacity emergency" will clarify those task statements 3-10 exceedingly. Cutting out the causal trigger for action, i.e. "Capacity deficiency", the measurable task #2 becomes "Respond to". Please provide an example of how one measures competency for the task "Respond to". In items 4-8, the competency task has nothing to do with the trigger to initiate the task. Dropping "Prepare for a capacity emergency by….", is not a task definition. "Bringing on all generation", "postponing equipment maintenance", "scheduling emergency energy purchases", reducing load, initiating voltage reductions" (which is really a subtask of reducing load), "requesting emergency assistance from other systems", can be executed to resolve any number of issues besides capacity emergencies. The same tasks can apply to (1) preparing for and (2) resolving - all the subsets of SOL and IROLs. How is the task "request emergency energy" in item 1 different from "scheduling emergency energy" in item 6, or "schedule available emergency assistance" in item 10"? Please explain. The same exercise can be applied to items 15-24 on that list. 15 - Manually shed load to alleviate system emergency conditions 16 - Following the activation of automatic load shedding schemes, restore system load as appropriate for current system conditions and in coordination with adjacent systems 17 - Following the activation of automatic load shedding schemes, shed additional load manually if there is insufficient generation to support the connected load 18 - Following the activation of automatic load shedding schemes, monitor system voltage levels to ensure high voltage conditions do not develop 19 - Following the activation of automatic load shedding schemes, monitor system frequency to ensure high frequency conditions do not develop 20 - Following the activation of automatic load shedding schemes, monitor the performance of any automatic load restoration relays 21 - Following the activation of automatic load shedding schemes, resynchronize transmission at

Question #11	
Commenter	**Comment**
	preplanned locations if possible 22 - Following the activation of automatic load shedding schemes, disable automatic under frequency relays if system conditions warrant 23 - Direct distribution providers to shed load when required for system reliability 24 - Use manual load shedding to prevent imminent separation from the Interconnection due to transmission overloads or to prevent voltage collapse "Following the activation of automatic load shedding schemes" has no place in an outcome oriented, measurable task definition. It makes no difference to the operators' task how the load was shed. Is the manual load shed task in 15 any different from the manual load shed task in 24? Are transmission overloads and voltage collapse in task 24 not included in task 15 "emergency conditions"? Please explain. Does restoring system load task in 16 have any connection to how the load was lost? Is restoring load lost by UFLS, different from restoring load for manual load shed, or load trip, or restoration? Please explain. Do you only monitor voltage levels following a UFLS event? Do I need different tasks to monitor voltage for load pick-up, load drop-off, line switching, line tripping, generation tripping, capacitor switching, reactor switching, phase shifter operations, HVDC operations, and interchange schedule changes? For each of these tasks, will I need a procedure for the auditors to verify? Please explain. Do we only resynchronize transmission at pre-planned locations after UFLS events? Do I need to define different tasks for resynchronize transmission at pre-planned locations after a maintenance separation, during a system restoration, etc.? Please explain Attachment B is severely flawed and redundant The list in Attachment B has no place in a standards document unless each and every item on those lists is mandatory. Attachment B should be deleted or seriously reworded. It will never stand up in court. A1) "Emergency Drills and Responses" will capture: All of section B "Operating Policies relative to Emergency Operations"

Question #11	
Commenter	**Comment**
	D4) responding to imminent voltage collapse D5) SOL: and IROL D6) DC operations during system emergencies All of section B, D4, D5 and D6 should be removed in this standard that addresses a systematic approach. D8 & D9. There is no distinction between "congestion management" and "line loading procedures" Remove D8 as redundant in this standard that addresses a systematic approach. What is the difference between "congestion management" and "line loading procedures"? Please explain. D11: Assuming that "tie line operations" means CPS control state that. If you intend it to mean another form of line loading control, delete it. If you mean these to be different items, please clarify. A5 & D2; There is no distinction between A5 and D2. Remove D2. A5: System protection D2: Special protections systems What are "special protections systems" if not an instance of "system protection"? Please explain. A4 & D3: There is no distinction between A4 and D3. Remove D3 A4: operations during unstudied conditions d3: special operating guides What is if the function of "special operating guides" if not to address "operations during unstudied conditions"? Please explain.
Response: The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1. The SPT SDT moved Attachment B so that it is no longer part of a requirement but is a Reference document for this standard.	
OVEC	The statement in Applicability Section 4.2 is too broad. It could be interpreted to include switchmen

Question #11	
Commenter	**Comment**
	performing switching because switchmen can "impact reliability by producing a real-time response form the Bulk Electric System." This interpretation will not achieve industry consensus for the standard. The statement should be revised to repeat requirements R2 and R2.1 of PER-002 which states that "Each Transmission Operator and Balancing Authority shall have a training program for all operating personnel that are in: Positions that have the primary responsibility, either directly or through communications with others, for the real-time operation of the interconnected Bulk Electric System." This statement has the correct narrow focus, is easily understood, and is currently implemented by the entities. It is confusing in R2 why the word "position" was used rather than the word "person" and why was the word "capability" used at the end of the sentence. As currently worded, it is not clear what R2 is trying to require. The requirement seems to be asking an entity to "determine mismatch between acceptable and actual performance capability for a position." What does that mean? The implementation of that interpretation does not seem feasible for the "capability of a position." It would seem the intent should be to determine the mismatch between acceptable and actual performance for an individual operator which R4 of the standard basically states. Suggest deleting R2, R2.1 and R2.2 and adding specificity to R4 described below. R4 does not indicate how often an entity should verify capabilites of its Sytem Operators. Do entities only need to verifty capability of an Operator one time for each task? What if the task is rarely performed, how often should verification take place? What if the task is performed daily, how often should verification take place? The lack of a specified frequency to verify capability creates a requirement that provides no improvement to the reliability of the Bulk Electric System. In R3 delete "and system restoration training" because this type of training would be considered emergency operations already. Delete R3.1 and Attachment B because the added specificity will not improve the type or scope of emergency training. Delete R3.1.1 because by just having a list will not improve emergency training or improve the reliability of the Bulk Electric System. This proposed standard and several other standards appear to be an overreaction to the August 14 blackout. It seems to fall back to the specious argument that is if something happens, someone must have been responsible for the problem . Why are we unable to place the blame on the system for the problem, even if the system was the problem? There has been no assessment or evaluation of the effectiveness existing training programs required by PER-002, R3 that has been in affect for over two years. Why create a standard to mandate a new

Question #11	
Commenter	**Comment**
	training program when no assessment has been made of the effectiveness of existing training programs? The work to create a new training standard is not a judicious use of resources in order to strengthen the reliability of the bulk electric system. The argument that FERC has mandated SAT-based training programs in its order does not preclude the possibility that the FERC conclusion is wrong and unneccesary. This standard goes beyond requiring a new training program. The standard seems to dictate the material on which operators are to be trained and how they are to be trained. The NERC operator certification program already determines that operators possess the minimal requirements to reliably operate the bulk electric system. Why should a training program duplicate the certification process? Currently there is ample incentive to have operators trained on company-specific tasks. An operator who is not capable of performing company specific task will not remain an operator at that company. Many of the tasks listed in Appendix A do not seem to be reliability related and some would seem to be beyond the scope of a system operator position. For example, Item 18, says "Ensure that transmission contract paths are not exceeded." This item is more of a regulatory or business requirement than a reliability concern. Item 42, "Prepare daily reports and logs generated to meet company and regulatory requirements." This item may be important, but it is not important for reliability. Item 65, "Implement specified procedural actions in the event of a FERC Standards of Conduct violation." How is this item reliability related? Item 9, "Interpret relay targets, during forced outages." This item would be the responsibility of a system protection engineer who would provide guidance to the system operator and would not be the sole responsibility of the system operator. In rebuttal to the "Background Information" provided above, work on this proposed training standard should cease and the standard should not be implemented for the following reasons: 1. Training is currently being provided to NERC Certified System Operators as a part of the NERC conitinuing education requirements for system operators and as also required in PER-002, R3. 2. Emergency Operations training is currently required in PER-002, R4. 3. Entities are currently allowed to determine and develop training based on individual training needs to support operation of the Bulk Electric System. 4. The language of the standard is too prescriptive especially, but not limited to, the inclusion of Attachment A and Attachment B. 5. Entities do not need a common starting point for training because of the extreme operational differences between entities. 6. Entites currently implement successful training programs as required by PER-002, R3. 7. The conclusion and assumption from the August , 2003 blackout investigation that Sytem

Question #11	
Commenter	**Comment**
	Operators were not prepared to react in a manner that preserves the reliability of the interconnection is not correct. The operators were indeed prepared and were reacting to the events before the August, 2003 blackout in a manner to preserve the reliability of the interconnection by using the best data and information available to them. System Operators today are trained to perform tasks assigned to their position.
Response: The SPT SDT removed Section 4.2. The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the operator's assigned task list is modified. The SPT SDT revised M2 (previously M4) to include examples of evidence. The SPT SDT clarified the language in R3, explaining the emergency operations training includes system restoration training. The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1.	
PHI	No comment.
SMUD	All training requirements per standard should be cross referenced and included in a PER attachment or could even be excluded from the individual standards. On the cover letter, SMUD disagrees that the verification of qualifications for people developing / delivering training should be eliminated. Also, SMUD disagrees on the elimination of the requirement addressing maintenance of the system operator training program. SMUD believes the methodology used to perform the analysis phase of a systematic approach to training (SAT)should be required in the standard not just the phases of the SAT process.
Response: The SPT SDT will suggest that NERC consider adding a new standard project to the Reliability Standards Work Plan 2008-2010 that consolidates all training-related requirements into the PER standards. The qualifications for people developing/delivering training and the maintenance of the training program are outside the scope of the approved SAR. In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its comliance	

Question #11	
Commenter	**Comment**
with each requirement.	
APS	We question the Applicability of this standard to "delegates" referenced in 4.2. Depending on how this requirement is interpreted, the scope of the training project we're undertaking could grow exponentially. The R.1.1 requirement seems to demand that entities use the Generic Task List during their analysis phase. If another commercially available list is currently being used, is it invalidated by this standard? The details provided in R2.1 and R2.2 could be easily included in the verbiage of R2 for simplicity. The details provided in R3.1 and R3.1.1 could be easily included in the verbiage of R3 for simplicity. Draft 2 of PER-005-1 is a big improvement over Draft 1.
Response: The SPT SDT removed Section 4.2. The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update their BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator. The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1. The SPT SDT revised R3, as suggested.	
Santee Cooper	The System Personnel Training Standard should address training that is required for reliable operation of the BES. It should not dictate how a company must implement its actual training program.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that “uses the Systematic Approach to Training (SAT) methodology in its development of new training programs”. The revised R1 requires that a systematic approach must be used to create new or revise existing training programs for BES company-specific reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement.	
Avista	No comment.
Entergy (1)	The draft standard extends the requirements to an undefined phrase: "delegates who can directly, or through communications, impact reliability by producing a real-time response from the Bulk Electric System". We do not understand the meaning, scope or extent of who or what constitutes "delegates" that might fall under this standard. We request this phrase be deleted from this and all similar

Question #11	
Commenter	**Comment**
	standards. We also request the authors not include any other phrases like "delegates" or any other similar attempts to extend job functions of other RC, BA or TOP positions into the definition of System Operator. R1.1 requires the creation of a company specific list of BES reliability-related tasks, the creation of which could be considered part of R1 itself and does not need to be a separate requirement. In addition, an entity will be penalized twice for not developing this list, once for R1.1 and penalized again for violating R1. Therefore, R1.1 should be deleted and considered part of R1, performing the Analysis phase of the SAT process. SHOULD WE SUGGEST R1.1 BE DELETED, OR SHOULD IT BE A SEPARATE REQUIREMENT? LEAVING R1.1 AS IT IS COULD BE CONFUSING. The intent and meaning of the wording "acceptable" and "actual" performance capability used in R2 as they are applied to a System Operator Position is not clear . Please clarify the intent and meaning of R2. A position can have tasks assigned to it with acceptable or defined, performance criteria. A position can not have "actual" performance capability; a person performing that task can have "actual" performance capability. If the intent of R2 is to determine the mis-match between a persons actual performance capability of a task and the acceptable performance criteria for that task then please so state that one part applies to a person and one part to the position. If it is not the intent, then please clarify the meaning of this section. PER-004-2, as revised, contains two requirements: one to maintain staffing 24/7, and the other to place attention on SOLs, IROLs and inter-tie facility limits, and to ensure protocols are in place. There are no measures for these three requirements. Please add measures for these three requirements.
Response: The SPT SDT removed Section 4.2 The SPTSDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised the R4 (now R2) to clearly state that the capability assessment is verified for each System Operator. Your suggested changes to the remaining requirements in the approved PER-004-2 are outside the scope of this effort.	
FirstEnergy	FE has the following additional comments: 1. This standard requires the use of the SAT process, yet it contains no requirement for trainers to be trained in this process. This train-the-trainer requirement is necessary to ensure an effective implementation process throughout the industry. This should be remedied prior to this standard becoming effective.

Question #11	
Commenter	**Comment**
	2. In R3, the phrase "…at least 32 hours annually of emergency operations and system restoration training" is written incorrectly and does not coordinate with its measure, M3. We suggest changes to the phrase in both R3 and M3 to read "…at least 32 hours annually of emergency operations training which includes system restoration training". 3. In R1, the last part of the statement should say "…System Operator positions." and not "…System Operators." This would then be consistent with the rest of the standard. 4. In Attachment A, Items #2 and #4 are duplicative. This should be corrected. 5. It is not clear how R4 would be acceptable from a compliance standpoint. The SDT should add verbiage to clarify this requirement. The measure for this requirement (M4) doesn't add any value. 6. Measures should not add requirements. We believe that M1.2 is dictating more requirements than R1 intends when it states "Design and development of training materials that result in learning objectives and content that is derived from results of training analysis". The SDT should remove this from the measures and re-evaluate the need for this statement in the standard.

Response: 1. The qualifications for people developing/delivering training and the maintenance of the training program are outside the scope of the approved SAR.

2. The SPT SDT has revised R3 to clarify the condition under which the requirement must be performed is every twelve months.

3. The SPT SDT combined R1 and R2 to clarify the requirement. The revised R1 requires each entity to update its BES company-specific reliability-related task list at least annually and then develop the necessary training to address the updated or new tasks. The SPT SDT has revised R4 (now R2) to clearly state that the capability assessment is verified for each System Operator.

4. The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1.

5. The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the operator's assigned task list is modified. The SPT SDT revised M2 (previously M4) to include some evidence examples.

6. The SPT SDT agrees with your comment and has revised R1 and M1.

Question #11	
Commenter	**Comment**
Quality Training Systems	This comment relates to Requirement R1.1 that each Reliability Coordinator, Balancing Authority and Transmission Owner should use the generic task list in the Attachment to the draft standard as the basis for their own JTA. The task list contains important information and would certainly be useful as a guide for entities starting out on the JTA process, but we do not believe that the list is sufficiently well developed to be a required starting point. Quality Training Systems has developed and refined its generic task list for system operators over several years, making extensive use of NERC source documents and with advisement by Industry Experts. We recognize the difficulty in developing a coherent, well-categorized task list at a consistent level of detail, but we are nonetheless concerned at offering an industry standard that still offers considerable room for improvement. 1. Classification System The categorization scheme is difficult to follow in places as evidenced by the fact that closely similar tasks are listed in different Sections of the task list and - within a given section - under different Types of Activity. Consider, for example, the following tasks relating to voltage control: “Monitor and maintain defined voltage profiles to ensure system reliability.” (Gen CC Ops 31 under Monitor) “Utilize reactive resources from transmission and generator owners to maintain acceptable voltage profiles.” (Gen CC Ops 60 under Operating) “Monitor the voltages, and coordinate the reactive dispatch of transmission facilities, and the interconnections with neighboring systems.” (Trans. Ops 34 under Operating) “Deploy reactive resources to maintain acceptable voltage profiles.” (Trans. Ops 51 under Voltage) “Coordinate operation of voltage control equipment with interconnected utilities.” (Trans. Ops 55 under Voltage) 2. Consistency There is a lack of consistency in the level of detail of the task statements. Some tasks are extremely general, and would be difficult to train in the stated form. For example: "Direct and/or regulate the operation of the transmission system" (Trans 15)

Question #11	
Commenter	**Comment**
	"Enforce operational reliability requirements" (Gen CC Ops 47) Other tasks are very specific and might be considered as steps in a larger task. For example: "Notify all affected areas that line loading relief has been requested, and that corrective actions are required" (Trans. 68) "Manually calculate net interchange when needed" (Int. 17) 3. Repetition Many tasks are repeated with closely similar wording or wording such that the more general statement includes the other more specific task(s). For example, compare :the following two tasks taken from different Sections of the Task list: “Implement system restoration procedures” (Gen. CC Ops 68): “Following a partial or total system shutdown, implement the appropriate provisions and procedures of the system’s restoration plan in a coordinated manner with adjacent systems" (Emer. Ops 50)” 4. Clarity A few of the task statements are unclear or poorly worded. Consider, for example; the following task, the intent of whiich seems to be captured in better-stated items elsewhere in the list: "Direct to the appropriate entities those options necessary to relieve reliability threats and violations in a reliability authority area” (Gen. CC Ops 55)
Response: The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1.	
TAL	A4.2 - "producing a real-time response from the Bulk Electric System" is not clear and unambiguous. Turning on a light switch (to power the runway landing lights for the highly trained pilots) produces "a real-time response". R3 - How is a "new" employee handled? If I hire an operator and he gets NERC Certified in November (or later) I feel I should not have to complete all 32 hours of emergency training. Attachment A - The removal or addition of any item(s) is subjective. While I understand it is only a starting point, whose subjectivity will be used when determining compliance to this standard. Many

Question #11	
Commenter	**Comment**
	of these items are poorly worded if they are intended to be a measurable task. I will be paring the list down substantially to remove redundant requirements, and clarify the remaining. Attachment B - Intro paragraph is not entirely true. This list must be modified per R3.1.1 and will then contain the "company specific" topics for Emergency operations. Although training, or the lack of, played a part in the August 14, 2003 blackout, it was not the only thing found to need improvement. This standard places the burden of improvement of operations of the BES on the training system for the system operator. This is unfair to the majority of entities and operators who have adequate training in place and are not afraid to shed load when needed. This has placed the emphasis on proper documentation instead of performance. It will be expensive and turn into a paperwork nightmare to implement and to audit. A Systematic Approach to Training is not required to have a good training program. It IS required to be a CEH provider for NERC Credential Maintenance. But NERC has maintained a very pointed separation of the Training Standard and the CEH program and Credential Maintenance. This standard is trying to apply the CEH provider requirements to ALL entity training programs. It should not be the default system for every entity. Implementation of this standard as written will be a nightmare to implement and audit. It will result in lots of money spent for very little return on investment. It will dilute the effectiveness of many good programs out there and I doubt will force any of the mediocre ones into being good ones.

Response: The SPT SDT removed Section 4.2.

The SPT SDT has revised R3 to clarify that the condition under which the requirement must be performed is every twelve months.

The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1.

The SPT SDT moved Attachment B so that it is no longer part of a requirement but is a Reference Document for this standard.

In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that “uses the Systematic Approach to Training (SAT) methodology in its development of new training programs”. The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for BES company-specific reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is

Question #11	
Commenter	**Comment**
responsible for its compliance with each requirement.	
Madison G&E	Attachment A: Concerning General Control Center Operations Tasks, #22 (Monitor real-time market prices) should be removed, reliability is not based on economics. #58 (evaluate, test, and/or confirm the accuracy of reliability assessment tools) should be removed, this is not an operator task. Concerning Generation Tasks, #14 (publish next-day market results) it is redundant with #29. #48 (suspend automatic generation control as required) should be removed, it is part of #47. #58 (operate power facilities in compliance with environmental standards) should be removed, it is not a part of reliability. Attachment B: A.6, needs to be split into two topics, 1) Geomagnetic Disturbances on system operations and 2) Weather impacts on system conditions.
Response: The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1. The SPT SDT moved Attachment B so that it is no longer part of a requirement but is a Reference Document for this standard.	
Entergy (2)	PER-005-1 Applicability 4.2 : is this meaning that an operator performing a function per an approved procedure or under orders from an RC/BA/TO have training and be under a training program as outlined? This may be excessive application of the training standard. One could speculate that each power plant operator could fall under this because they operate a unit with MW and MVAR output, which creates a real time response from the BES. PER-005-1 R3, 3.1, 3.1.1 : the words "and system restoration" should be removed unless the system restoration topics in Attachment B are required. As written, R3 and sub requirements imply that some of the 32 hours must come from system restoration training. If that is correct then state the number of hours. Note that the title of Attachment B contains the term "Emergency Operations Topics" only, even though system restoration topics are covered under Section C. PER-005-1 Attachment A General Control Center Operations Tasks, Item 22: Monitoring of real-time prices for accuracy should

Question #11	
Commenter	**Comment**
	not be listed as a reliability-related task. Reliability and pricing are distinctly different. Is the intent to monitor the impact to reliability that real-time pricing is having? Generation Tasks Item 14: Publishing next-day market results should not be a reliability-related task. PER-004-2 Proposed Effective Dates: the bullets are extremely confusing and refer to requirements that aren't even listed. If approval of these standards deletes a pre-existing requirement immediately, there is no need to even mention it in this section (assuming that these standards are balloted together). Otherwise, list ALL of the requirements in the Requirements section and then the list of when they would no longer be in effect in the effective date section. PER-004-2 Compliance Monitoring Responsibility : Should this be the Compliance Enforcement Authority (as stated in PER-005-1)? PER-004-2 Compliance Monitoring: There is only a need to list the self certification. All requirements in the standards can be subject to monitoring under the other methods (spot check, periodic audit, triggered) and there is no need to list them here.
Response: The SPT SDT removed Section 4.2. The SPT SDT clarified the language in R3, explaining the emergency operations training includes system restoration training. The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1. Your suggestions to the remaining requirement in the approved PER-004-2 are outide the scope of this effort.	
ERCOT	***VERY IMPORTANT***Implementation of this Standard without a guiding document for a training program similar to what is provided by the Department of Energy or the U.S. Military who routinely apply SAT or Instructional System Design (ISD) processes leave too much open to the inerpretation of auditors. ***VERY IMPORTANT***: 4.2 needs to be re-worded so it is clear that the RC/BA/TO is not responsible for training personnel in other organizations to which it has delegated tasks. After 4.2, "delegates" is not mentioned in conjunction with RC/BA/TO as being responisble to implement this standard.
Response: The SPT SDT prepared a Reference Document for this standard that includes sources of additional information about the SAT process The SPT SDT has removed Section 4.2 from the revised standard.	

Question #11	
Commenter	**Comment**
Southern	No comment.
Allegheny Power	No comment.
AEP	R1 - We believe R1 should not mandate the approach to training, but should only mandate identification of reliability tasks and a training program that has objectives that support the reliability tasks. R1 attempts to eliminate informal and impromptu type training for initial and continuing training. Good, informal training should still be allowed in any training program, as the approach can still be proper and reap proper results, without having extensive documentation of a systematic process. Over the years, there have been many hours of informal training that has reaped satisfactory and above satisfactory results in performance and progression of system operators. Though SAT can be an improvement in some cases, it is not an improvement in all cases. SAT requirements should be a guide given as a reference document, but should not be a requirement and measurement of the standard. R1.1. - Typographical error. Transmission "Owner" should be Transmission "Operator". R3 – We believe requirement R3 should be for “NERC Certified System Operators” and offer those operators hired mid-year or who have hardships causing extended absences that prevent accumulating the required 32 hours, relief from the requirement. We suggest re-wording as follows or in some other fashion to offer relief for special circumstances as mentioned above: ----“Each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each NERC Certified System Operator with at least 32 hours annually of emergency operations and system restoration training. NERC Certified System Operators with only 6-9 months of on-shift operating time due to mid-year hiring or hardships shall be required 16 hours annually of emergency operations and system restoration training. NERC Certified System Operators who have less than 6 months operating time due to mid-year hiring or hardships shall be exempt from the annual emergency operations training requirement.”---- 2.3.3 - Violation Severity Levels – Reword in accordance with the suggested rewording of R3 requirement above to reflect NERC Certified System Operators and reduced hour requirements for special circumstances such as mid-year hiring or hardships. R3.1. – The wording of requirement R3.3 in parenthesis “(provided in Attachment B)” infers all topics of the attachment must be included in the 32 hours annual emergency training, and does not take into account the requirement of R3.1.1. We believe the intent should be “selected topics” from Attachment B. We believe R3.1 should be re-worded as follows: ----“The emergency operations and system restoration training shall include the principles and

Question #11	
Commenter	**Comment**
	procedures needed for recognizing and responding to emergencies, using drills, exercises or simulations of system conditions in subject areas selected from the responsible entity's applicable Emergency Operations Topics listing developed from Attachment B and according to the requirement of R3.1.1."------- 2.2.3 – Violation Severity Levels – Re-word to correspond to R3.1 rewording as follows: -----"The responsible entity provided the minimum 32 hours of training on emergency operations or system restoration, annually for all system operators, but some hours provided included topics not listed in the responsible entity's list required by R3.1.1.----- 2.3.4. – Violation Severity Levels – Reword as follows for clarity of intent: ----"The responsible entity has performed an assessment of its System Operator's Capabilities to perform each identified task that is on its company-specific reliability-related task list, for some but not all of its System Operators.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised R1 requires that a systematic approach must be used to create new or revise existing training programs for BES company-specific reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each requirement. The SPT SDT corrected the entity in R1.1 from "Transmission Owner" to "Transmission Operator." The SPT SDT revised the condition for R3 from "annually" to "every 12-months." There is no NERC re-certification requirement for emergency training. If the 32 hours meet the requirements of the CE program, the hours can meet both requirements. The SPT SDT revised all of the VSLs based on the revised requirements. The SPT SDT moved Attachment B so that it is no longer part of a requirement but is a Reference Document for this standard. The SPT SDT revised R3 such that the sub-requirements were removed.	
ATC	The Standard requires applicable entities to develop a task list using Appendix A as a starting point. The standard allows entities to add and delete from the task list (Appendix A) as they determined necessary. So, would Applicability section (4.2) only apply if a TOP, BA or RC identifies a task and then delegates that task to a System Operator not covered under the Applicability 4.1? In other words, if a RC identifies a task in their list and then states that the task is performed by a non-RC System Operator, that delegate would then have to follow this standard.

Question #11	
Commenter	**Comment**
	If this is the case, who will be audited by the Regional Entities to confirm that the delegated System Operator is complying with the standard? Would the delegated System Operator have to be registered with NERC as a user, owner or operator of the BPS? The topic of delegation of requirements has come up in other standards and it's our position that NERC should develop a solution to the issue instead of looking to the individual SDT to come up with individual solutions. In this case the Applicable Entities are allowed to develop their own list using Appendix A because of this ATC believes that no entities will fall under 4.2 of the Applicability section. ATC request that 4.2 of the Applicability section be deleted from this standard.
Response: The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1. The SPT SDT agrees and has removed Section 4.2.	
BCTC	NERC CE and Certification of System Operators as a requirement was a huge step in dealing with issues that came from the Blackout recommendations. Meeting that requirement was also a good step in requiring training for SO's that meets a SAT process. And the continued training for SOs that support Certification went a long way to meet the Blackout recommendations regarding restoration, simulation and situational awareness. NERC would be better served by working with companies and training providers to make NERC Continuing Education fit the SAT and make sure all are comfortable with using it all the time when dealing with CE to maintain Certification. When that is accomplished moving forward on all training requirements starting with a proper JTA and all other training using the complete SAT could be looked at. We believe we are many years away from that.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for BES company-specific reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each requirement.	
CAISO	It appears that the intent of this Standard is to standardize and clarify what is and is not appropriate training materials for acceptance into the NERC Continuing Education Program. This is not well understood by the industry. If this is indeed the case, the CAISO supports such an effort. The way the existing draft is being interpreted by the industry, however, is that this will be an additional requirement, over and above (and possibly in conflict with) the NERC Certification maintenance requirements currently contained in the NERC Continuing Education Program.

Question #11	
Commenter	**Comment**
	The CAISO agrees that: - Training is a critical function for our industry. - NERC should mandate training time (i.e. minimum number of Continuing Education hours - limited to predefined critical functions) be required to ensure operators are provided experience with critical tools and procedures necessary to meet NERC's reliability standards. This could be coupled to maintaining NERC Operator certification. That would innocent operators to take the training or risk losing their personal certification, and would incent the organizations to ensure the training or risk not complying with the standard to use only-NERC certified operators. - General in-house training programs must be permitted to be structured to the varied ad hoc needs of the given organizations, their tools and their environment, and not subject to NERC standards. - Critical training be provided by accredited programs, and that NERC may desire to accredit programs used to provide CEH on those critical topics (e.g. Emergency Operations; Blackstart). - the result of a Training standard should be an operator that is prepared to handle that operators system; the result should NOT be the production and storage of paperwork. The CAISO does not agree that: - It is necessary that every organization has its own accredited program. As written, R1 requires that responsible entities complete the five phases of a systematic approach to training (SAT), which includes analysis, design, development, implementation, and evaluation) to establish a new or modify an existing training program. We do not agree that this should be a requirement. The requirement should be for the responsible entity receive training to help system operation personnel to acquire the competency to perform the applicable tasks pertaining to the RC, TOP and BA functions that the entity is responsible for or assigned. The IRC neither endorses nor disapproves the SAT process as a good approach> However, how any training program is arrived at (i.e. what approach it takes) is not important and should not be a standard. If so inclined, NERC itself could offer an SAT-based Training program. How could one make an argument that using other approaches to arrive at a training program that (a) list the tasks and competency level required to perform the task, (b) include the minimum requirements

Question #11	
Commenter	**Comment**
	stipulated in this standard such as the 32 hours emergency training, (c) has provision for a training schedule, review process, etc. is not an acceptable approach? Performance and capability are subjective ideas. Given all of the tests and training, no one can predict how a human will act. To state that the person is 'incapable' is a very strong statement and can only be made on a case-by-case basis - which by definition precludes a NERC standard.
Response: The NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPTSDT believes there is nothing in this standard that conflicts with the CE Program requirements. The standard does not limit the use of, nor does it require an entity to use the NERC CE Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH. The SPT SDT does not agree that the standard should include training time requirements for training on the BES reliailbity-related tasks. NERC's response to Blackout Recommendation 6A recommended 5 days of emergency operations training, which was subsequently clarified to mean 32-hours. The SPT SDT is not aware of the justification that was used for selecting 32 hours. In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for BES company-specific reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. The SPT SDT has prepared a Reference Document that provides several SAT resources. The Implementation Plan uses a phased-in approach to allow sufficient time to aquire training on using a systematic approach to developing training.	
CenterPoint	Instead of establishing a new collection of competency measurements that are already defined by the NERC System Operator Certification Program and the NERC Continuing Education Program, PER-005 should align itself with these existing programs. The standard would have a greater benefit to the industry if it established the curriculum for these existing programs. PER-005 could provide the training topics necessary for advanced learning of reliability-related tasks. The NERC Continuing Education Program uses Individual Learning Activity applications to determine if the course meets its criteria. Such review of applications presently includes whether the SAT process was utlilized. This is another reason why PER-005 should form the curriculum to be used in the NERC Continuing Education Program. Then, the Continuing Education Program would review each course application for compliance through the use of the NERC Continuing Education Review Panel.

Question #11	
Commenter	**Comment**
	Per R1.1, specific tasks must be selected from the proposed generic task list (Attachment A) if the task is performed by the entity's system operator positions. The generic task list includes tasks that are NOT reliability-related. For example Item 22 states "monitor real-time market proces for accuracy." The generic task list should be reviewed and edited to include ONLY reliability-related tasks.
Response: The NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPTSDT believes there is nothing in this standard that conflicts with the CE Program requirements. The standard does not limit the use of nor does it require an entity use the NERC CE Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH. The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing their BES company-specific reliability-related task list, as described in R1.	
NIPSCO	We need clarification in A.4.2 as to whom this standard is applicable and who will be the initially qualified personnel to sign off operators.
Response: The SPT SDT has removed Section 4.2	
NPCC RCS	R1.1 should refer to Transmission Operator instead of Transmission Owner. The proposed standard is not applicable to the Transmission Owner. Attachment B should have the same preamble as Attachment A.
Response: The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1. The SPT SDT moved Attachment B so that it is no longer part of a requirement but is a Reference Document for this standard.	
PG&E (1)	Paragraph 4.2 adds confusion to the standard. We recommend deleting this paragraph. The standard does not address requirements for delegates and it is therefore left to the reader to interpret what, if any, would be applicable. Delegates could be interpreted down to the crews, and we are sure that this interpretation is not intended.
Response: The SPT SDT has removed Section 4.2.	
PG&E (2)	This standard, along with the approved NERC Continuing Education training, records would be duplicated by the continuing education provider, now that operators must maintain their certification through continuing education.

Question #11	
Commenter	**Comment**
	The standard should be job task specific and not operator specific. Specific training requirements should be found in one standard, not throughout eighty or more.
Response: The NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPTSDT believes there is nothing in this standard that conflicts with the CE Program requirements. The standard does not limit the use of nor does it require an entity use the NERC CE Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH. The verification of each System Operator's capability to perform each assigned BES company-specific reliability-related task is included in the approved SAR for this standard. The SPT SDT will suggest that NERC consider adding a new standard project to the Reliability Standards Work Plan 2008-2010 that consolidates all training-related requirements into the PER standards.	
PJM	Several representatives of the ISO/RTO Council, in conjunction with discussions with Drafting Team members, have been informed that the intent of this Standard is to standardize and clarify what is and is not appropriate training materials for acceptance into the NERC Continuing Education Program. This is not well understood by the industry and, if this is indeed the case, PJM supports such an effort. The way the existing draft is being interpreted by the industry, however, is that this will be an additional requirement, over and above (and possibly in conflict with) the NERC Certification maintenance requirements currently contained in the NERC Continuing Education Program. PJM agrees that: - Training is a critical function for our industry, and would note that NERC already ties Continuing Education Hours to the maintenance of NERC Certification. - General in-house training programs must be permitted to be structured to the varied ad hoc needs of the given organizations, their tools and their environment, and not subject to NERC standards. - Critical training be provided by accredited programs, and that NERC may desire to accredit programs used to provide CEH on those critical topics (e.g. Emergency Operations; Blackstart). - the result of a Training standard should be an operator that is prepared to handle that operators system; the result should NOT be the production and storage of paperwork.

Question #11	
Commenter	**Comment**
	PJM does not agree that: - It is necessary that every organization has its own accredited program. As written, R1 requires that responsible entities complete the five phases of a systematic approach to training (SAT), which includes analysis, design, development, implementation, and evaluation) to establish a new or modify an existing training program. We do not agree that this should be a requirement. The requirement should be for the responsible entity receive training to help system operation personnel to acquire the competency to perform the applicable tasks pertaining to the RC, TOP and BA functions that the entity is responsible for or assigned. PJM neither endorses nor disapproves the SAT process as a good approach> However, how any training program is arrived at (i.e. what approach it takes) is not important and should not be a standard. If so inclined, NERC itself could offer an SAT-based Training program. How could one make an argument that using other approaches to arrive at a training program that (a) list the tasks and competency level required to perform the task, (b) include the minimum requirements stipulated in this standard such as the 32 hours emergency training, (c) has provision for a training schedule, review process, etc. is not an acceptable approach? Performance and capability are subjective ideas. Given all of the tests and training, no one can predict how a human will act. To state that the person is 'incapable' is a very strong statement and can only be made on a case-by-case basis - which by definition precludes a NERC standard.

Response: The NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPTSDT believes there is nothing in this standard that conflicts with the CE Program requirements. The standard does not limit the use of nor does it require an entity use the NERC CE Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH.

The SPT SDT does not agree that the standard should include training time requirements for training on the BES reliailbity-related tasks. NERC's response to Blackout Recommendation 6A recommended 5 days of emergency operations training, which was subsequently clarified to mean 32-hours. The SPT SDT is not aware of the justification that was used for selecting 32 hours.

In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance

Question #11	
Commenter	**Comment**
with each requirement. The SPT SDT has prepared a reference document that provides several SAT resources. The Implementation Plan uses a phased-in approach to allow sufficient time to aquire training on using a systematic approach to developing training.	
RCSDT	The RCSDT has a conflict between teams for ownership of the scope for PER-004 and feel that it belongs with Project 2006-1 which has PER-004 posted with PER-005 for comment. Project 2006-1 removed three of the PER-004 requirements and left in two. During the RCSDT review, we removed the same three requirements but also suggested removing the other two because they are redundant with other standards as follows: PER-004 R.1 is redundant with PER-003 PER-004 R.5 is redundant with COM-001 and IRO-002 The RCSDT request that ownership of PER-004 be scoped within Project 2006-1. The RCSDT is willing to assist Project 2006-1 in completing the review task. Respectfully, William M. Hardy RCSDT - Chair
Response: The two remaining PER-004 requirements are outside the scope of this Project and will be addressed by other NERC standard development projects, such as Project 2007-05 Certifying System Operators.	
SRP	The standard describes a specific “Systematic Approach to Training (SAT)”. This includes specific “phases” that must be included with various violation severity levels associated with the use/non use of these phases. The Standard as written is exceedingly restrictive in not allowing other training options to be considered for RC’s, BA’s and TO’s. An entity should have the option to select a training philosophy and program that meets their individual needs. This “one size fits all” for the entire industry is entirely too restrictive.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that “uses the Systematic Approach to Training (SAT) methodology in its development of new training programs”. The revised R1 requires that a systematic approach must be used to create new or revise existing training programs for BES company-specific reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each requirement.	
SDG&E	Applicability 4.2 is unclear. Who do you define as delegates? Are you looking to expand the applicability to personnel that are outside the control center real time operating postions? Also it refers to applying to those that "impact reliability"? This should be for something that has a signficant

Question #11	
Commenter	**Comment**
	negative impact, not just any impact, no matter how diminimus. There needs to be more clarity as to whom the System Operator training standards apply. Attachment A: Are you implying that anyone that does any of these function is in a System Operator position? In some cases, this work is done by back office staff or engineering. I do not believe all of these tasks need to be done by a System Operator with the level of training set up for them that you have designed. For example, Item 45, Perform next day reliability analysis of the electric system. This may be done by engineering staff, rather than a System Operator. Are you now saying they are System Operators? Or are you still limiting System Operators to the real-time operating positions that control the system?
Response: The SPT SDT has removed Section 4.2 from the revised standard. The SPT SDT removed Attachment A from the standard. Each entity is responsible for developing its BES company-specific reliability-related task list, as described in R1.	
We Energies	PER-002-0 R4 allows "five days per year of training and drills using realistic simulations of system emergencies". PER-005-1 R3.1 allows only "using drills, exercises, or simulations". Removal of the word "training" forces the 32 hours to be only drills, exercises, or simulations. Classroom type training could not be counted toward the 32 hours.
Response: The SPT SDT revised the language to include “training”.	
Garland	As stated in question #9 above, small utilities do not have unlimited resources to budget only to training. This standard would place an undue burden on training departments to meet compliance criteria that would result in additional staff needed that small entities can not meet. R4 -How are we supposed verify the capabilities of the each real time operator? How will someone with a NERC certification that is not working a real time desk position, (i.e. training, other administrative rolls, switching coordinator) be assessed? How will operators be assessed annually under R2? Why would any entity want to add to the task list when you can not meet the requirements already stated? There are many items in the task list that are not currently done in ERCOT by Transmission and Generation Operators on a utility level, but rather done on the ERCOT regional level so how can one be assessed on that requirement.

Question #11	
Commenter	**Comment**
	I would see that entities will be excluding task from the list rather than adding them. A systematic approach to training is the way to approach training needs, but this approach seems to be a bit to aggressive without consideration for the small utilities. NERC should take the lead in developing training programs that can be administered be regional entities that are appropriate for the region.
Response: The SPT SDT has considered stakeholder comments on Version 1 and Version 2 of the standard and believes the existing Implementation Plan reflects stakeholder consensus. The SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the operator's assigned task list is modified. The SPT SDT revised M2 (previously M4) to include some evidence examples such as training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments. This standard applies to System Operators, which by definition is a real-time position. The SPT SDT will forward your comment on training program development to NERC.	
HQT	R1.1 should refer to Transmission Operator instead of Transmission Owner. The proposed standard is not applicable to the Transmission Owner. Attachment B should have the same preamble as Attachment A.
Response: The SPT SDT corrected the entity in R1.1 from Transmission Owner to Transmission Operator. The SPT SDT has moved Attachment B so that it is no longer part of a requirement but is a Reference Document for this standard.	
IESO	The IESO appreciates the opportunity to comment, and commends the drafting team for responding positively to our comments on the previous draft standard and SAR. However, we have a major difficulty with this standard: 1. R1 require that responsible entities complete the five phases of a systematic approach to training (SAT), which includes analysis, design, development, implementation, and evaluation - ADDIE) to establish a new or modify an existing training program. We do not agree that this should be a requirement. The requirement should be for the responsible entity to develop an effective training program to help

Question #11	
Commenter	**Comment**
	system operation personnel to acquire the competency to perform the applicable tasks pertaining to the RC, TOP and BA functions that the entity is responsible for or assigned. We neither endorse nor disagree that the SAT process is a good approach, but how the training program is arrived at (i.e. what approach it takes) is not important and should not be a standard. The 2003 Blackout report emphasized a need to train system operators to perform all tasks assigned to their positions. This can be met by requiring responsible entities to develop programs that cover training on all the tasks assigned to the operators, within the scope of the RC, TOP and BA functions, provide the resource for delivering the training. To achieve this, let us reiterate our previous suggestions: a. Developing a training program which lists the tasks (specifically for the RC, BA and TOP as listed in the Functional Model) to be performed and the competency level required to perform the tasks; b. Delivering the training program; c. Recording, tracking and assessing progress of the persons receiving training; d. Planning, providing resource, reviewing and adjusting (as necessary) the training program annually. (2) We realize that system operators may perform other tasks over and above those identified for the RC, BA and TOP functions. However, these other tasks are outside of the scope of the envisaged certification requirements and hence outside of the scope of this standard. The term "company-specific reliability related task" lends itself to interpretation that other reliability tasks (such as those performed by GOP, DP, etc.) must also be included in the training program. We suggest this term be revised, or more words be used to clearly stipulate that only the tasks assigned to the above 3 functions need to be included, depending on the structure and the registered function(s) of the organization.
Response: (1) In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that “uses the Systematic Approach to Training (SAT) methodology in its development of new training programs”. The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each requirement. (2) The standard is addressing BES company-specific reliability-related tasks performed by the three applicable entities.	
ISO New England	R1.1 should refer to Transmission Operator instead of Transmission Owner. The proposed standard is not applicable to the Transmission Owner.

Question #11	
Commenter	**Comment**
	Attachment B should have the same preamble as Attachment A.
Response: The SPT SDT corrected the entity in R1.1 from Transmission Owner to Transmission Operator. The SPT SDT has moved Attachment B so that it is no longer part of a requirement but is a Reference Document and removed Attachment A.	
Manitoba Hydro	I still have a concern with whether or not this would be fairly applied by all utilities. Most utilities will try and keep a minimum set of tasks and the assessment process will be treated inconsistently across the utilies.. This has been a better attempt at providing the miniimum tasks for each type of system operator but again, there will be no way the NERC or an audit team will be able to determine if the task should be there or not. Some way of tying the metrics being developed by the TADS might be away for determining training needs.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for their response to each requirement. The ERO's Sanctions Guidelines allow the compliance enforcement authority to increase the size of a fine when an entity is not truthful in completing its self-certification. This should incent entities to be truthful in complying with the requirements of the standard.	
MISO Stakeholders	The scope of the Certifying System Operators SAR indicates that they will determine who needs to be certified. Yet, this standard in section 4.2 of Applicability section specifies who should be certified. This should be coordinated with the CSO SDT. Requirement R1 in PER-004-2 will be redundant with standards created by the CSO SDT. We recommend eliminating it. Requirement 2 is also poorly defined and not measurable. How does one place particular attention on SOLs and IROLs? This a relative statement that leaves the requirement open to significant future challenges during enforcement. The standard appears to have only 4 requirements, yet is 27 pages long. It is too complex. All registered entities should have a training program. It does not have to be a SAT program.
Response: The SPT SDT removed section 4.2. PER-004-2 changes beyond those identified in the Implementation Plan are outside the scope of this standard. In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The revised Requirement 1 requires	

Question #11	
Commenter	**Comment**
that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. Each applicable entity (Reliability Coordinator, Balancing Authority, and Transmission Operator) is responsible for its compliance with each requirement. The two remaining PER-004 requirements are outside the scope of this Project and will be addressed by other NERC standard development projects, such as Project 2007-05 Certifying System Operators.	
MRO	Please explain how the performance reset period of one month would work when the training program is being assessed annually per R2.
Response: The compliance monitoring period is the time period in which performance or outcomes are measured and evaluated and then reset. In the past, most requirements were measured annually through self-certification and then once every three years with a periodic audit and reset at the end of the audit period. This process has changed, and now some entities are on a 6-year audit cycle and others are on a three-year audit cycle. The revised standard does not include a "Performance reset period."	
SPP ORWG	While we don't have an issue with requiring a training program, we do take exception to having to maintain all the documentation that will be required as the standard is currently proposed.
Response: The responsible entity needs to maintain sufficient evidence to demonstrate compliance to the requirements. Note that the data retention in the revised standard is shorter than in the second draft of the standard.	
WECC OTS	The WECC OTS is the principle group in the Western Interconnection to support the WECC training program and providing support to the trainers in the West. It is the OTS belief that quality training can and should result in quality System Operators and improved system reliability and therefore, we are supportive of the effort by the drafting team for their efforts to ensure the system operator responsible for the BES meets a minimum competency and knowledge levels. Quality training requires analysis and process and the OTS supports a requirement for development, delivery, and evaluation of system operator training using a "systematic approach to training" as required in this Standard and endorsed by the FERC. However, the OTS feels that this standard, along with the approved NERC Continuing Education training, records would be duplicated by the continuing education provider, now that operators must maintain their certification through continuing education. Therefore, the WECC OTS recommends this standard be job task specific and not operator specific. The OTS has also identified several training specific needs in other NERC Standards and would like to recommend that all training requirements in the current NERC Standards and future Standards only be identified in the NERC System Personnel Training Standard. While it is necessary to mention in the

Question #11	
Commenter	**Comment**
	various standards, training needs per that standard, specific training requirements should be found in one standard, not amongst eighty or more. This allows the training staff responsible for the training compliance measures to coordinate and provide training for all future and current training needs. OTS suggests this Standard focus on Certified System Operators only at this time. The training for CE to support Certified System Operators using the SAT process should be covered at this time.
Response: : The NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. The SPTSDT believes there is nothing in this standard that conflicts with the CE Program requirements. The standard does not limit the use of nor does it require an entity use the NERC CE Program. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific related-related tasks). The CE training can be also used for NERC re-certification. Most training in this standard could meet CEH. The verification of each System Operator's capability to perform each assigned BES company-specific reliability-related task is included in the approved SAR for this standard.	

Maureen E. Long
Standards Process Manager

August 15, 2007

TO: REGISTERED BALLOT BODY

Ladies and Gentlemen:

Announcement: Nomination Periods Open for Three Drafting Teams

The Standards Committee announces the following standards actions:

Nominations for Project 2006-01 System Personnel Training Standard Drafting Team (August 15–29, 2007)

The Standards Committee is seeking additional industry experts to serve on the System Personnel Training Standard Drafting Team. The new members will join the already-formed drafting team in developing the following standard:

- PER-005 — System Personnel Training

If you are interested in serving on this standard drafting team, please complete this nomination form and return it to sarcomm@nerc.net by August 29, 2007 with "System Personnel Training SDT" in the subject line. For questions, please contact Linda Clarke at 610-310-7210 or linclrke@msn.com.

Nominations for Project 2007-06 System Protection Coordination Standard Drafting Team (August 15–29, 2007)

The Standards Committee is seeking industry experts to serve on the System Protection Coordination Standard Drafting Team. The drafting team will work on modifications to the following standard:

- PRC-001 — System Protection Coordination

If you are interested in serving on this standard drafting team, please complete this nomination form and return it to sarcomm@nerc.net by August 29, 2007 with "System Protection Coordination SDT" in the subject line. For questions, please contact Al Calafiore at 678-524-1188 or at al.calafiore@nerc.net.

Nominations for Project 2007-17 Protection System Maintenance and Testing Standard Drafting Team (August 15–29, 2007)

The Standards Committee is seeking industry experts to serve on the Protection System Maintenance and Testing Standard Drafting Team. If you are interested in serving on this team, please complete this nomination form and return it to sarcomm@nerc.net with "Protection System Maintenance SDT" in the subject line by August 29, 2007. For questions, please contact Al Calafiore at 678-524-1188 or at al.calafiore@nerc.net.

The drafting team will work on revising the following standards:

- PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing
- PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs
- PRC-011-0 — UVLS System Maintenance and Testing
- PRC-017-0 — Special Protection System Maintenance and Testing

Standards Development Process

The *Reliability Standards Development Procedure* contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate. If you have any questions, please contact me at 813-468-5998 or maureen.long@nerc.net.

Sincerely,

Maureen E. Long

cc: Registered Ballot Body Registered Users
Standards Mailing List
NERC Roster

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Nomination Form for System Personnel Training Standard Drafting Team (Project 2006-01)

Please return this form to sarcomm@nerc.net by August 29, 2007 with the words "System Personnel Training SDT" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

All candidates should be prepared to participate actively at these meetings.

Name: Organization: Address: Office Telephone: E-mail:
Please briefly describe your experience and qualifications to serve on the System Personnel Training Standard Drafting Team. Candidates should have experience in managing real-time operators working for Reliability Coordinators, Transmission Operators and/or Balancing Authorities. Previous experience working on or applying NERC or IEEE standards is beneficial, but not a requirement.

I represent the following NERC Reliability Region(s) (check all that apply)**:**	**I represent the following Industry Segment (check one):**	
☐ ERCOT ☐ FRCC ☐ MRO ☐ NPCC ☐ RFC ☐ SERC ☐ SPP ☐ WECC ☐ NA – Not Applicable	☐	1 — Transmission Owners
	☐	2 — RTOs, ISOs
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, and Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Which of the following Function(s)[1] do you have expertise or responsibilities:

☐ Balancing Authority	☐ Planning Coordinator
☐ Compliance Monitor	☐ Transmission Operator
☐ Distribution Provider	☐ Transmission Owner
☐ Generator Operator	☐ Transmission Planner
☐ Generator Owner	☐ Transmission Service Provider
☐ Interchange Authority	☐ Purchasing-selling Entity
☐ Load-serving Entity	☐ Resource Planner
☐ Market Operator	☐ Reliability Coordinator

Provide the names and contact information for two references who could attest to your technical qualifications and your ability to work well in a group.

Name:	Office Telephone:
Organization:	E-mail:
Name:	Office Telephone:
Organization:	E-mail:

[1] These functions are defined in the NERC Functional Model, which is downloadable from the NERC Web site: http://www.nerc.com/~filez/functionalmodel.html

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Standards Announcement

Comment Period Opens
February 25–April 9, 2008

Now available at: http://www.nerc.com/~filez/standards/System-Personnel-Training

Comment Period for Project 2006-01 — System Personnel Training Standard Opens February 25, 2008

The System Personnel Training Standard Drafting Team has posted its third draft of PER-005-1 — System Personnel Training (Project 2006-01) along with an implementation plan, and a reference to aid in implementing the standard.

The purpose of the standard is to ensure that that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System are competent to perform those reliability related tasks. The proposed standard is applicable to Reliability Coordinators, Balancing Authorities, and Transmission Operators.

Please use this electronic comment form to submit comments on the third draft of PER-005-1 by **April 9, 2008**.

Standards Development Process

The NERC posting and balloting procedures are described in the *Reliability Standards Development Procedure Manual*, which contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

Please send questions to Maureen Long at maureen.long@nerc.net, or call 813-468-5998.

cc: Registered Ballot Body Registered Users
Standards Mailing List
NERC Roster

North American Electric Reliability Corporation
116-390 Village Blvd.
Princeton, NJ 08540
609.452.8060 | www.nerc.com

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. Standards Committee approves SAR for posting on December 1, 2004.
2. SAR Drafting Team posted SAR for comments on December 7, 2004.
3. SAR Drafting Team responds to comments, revises SAR, and posts revised SAR for comments on February 17, 2006.
4. SAR Drafting Team responds to comments and revises SAR on May 15, 2006.
5. Standards Committee approves development of Standard on May 15, 2006.
6. The Standards Authorization Committee appointed the Standard Drafting Team on June 21, 2006.
7. Standards Drafting Team posted draft standard for comment on September 27, 2006.
8. Standards Drafting Team responded to comments and posted the revised standard on August 15, 2007.
9. Standard Drafting Team responded to comments and posted the revised standard for comment on February 15, 2008.

Proposed Action Plan and Description of Current Draft:

This is the third posting of the proposed standard and its associated implementation plan for a 45-day comment period, from February 25, 2008 to April 9, 2008.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments on the third draft of the proposed standard.	May 15, 2008
2. Obtain the Standards Committee's approval to move the standard forward to balloting.	June 15, 2008
3. Post the standard and implementation plan for a 30-day pre-ballot review.	July 1–July 31, 2008
4. Conduct an initial ballot for ten days.	August 1–August 10, 2008
5. Respond to comments submitted with the initial ballot.	September 1, 2008
6. Conduct a recirculation ballot for ten days.	September 1–September 10, 2008
7. Post for a 30-day preview for board.	October 1–October 31, 2008

8. BOT adoption.	November 15, 2008

A. Introduction

1. Title: **System Personnel Training**

2. Number: PER-005-1

3. Purpose: To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent to perform those reliability-related tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.

4. Applicability:

4.1. Functional Entities:

4.1.1 Reliability Coordinator.

4.1.2 Balancing Authority.

4.1.3 Transmission Operator.

5. Proposed Effective Date:

Effective 36 months after the first day of the first calendar quarter following applicable regulatory approval, or in those jurisdictions where no regulatory approval is required, the Reliability Standard becomes effective 36 months after the first day of the first calendar quarter after Board of Trustee adoption.

B. Requirements

R1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall use a systematic approach to training to establish a new or modify an existing training program(s) for the BES company-specific reliability-related tasks performed by its System Operators. *[Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R1.1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall create a list of BES company-specific reliability-related tasks performed by its System Operators.

R1.1.1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall update its list of BES company-specific reliability-related tasks performed by its System Operators at least annually to identify new or modified tasks for inclusion in training.

R1.2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall design and develop learning objectives and training materials based on the task list created in R1.1.

R1.3. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall deliver the training established in R1.2.

R1.4. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall conduct an evaluation of the training program established in R1, to identify any needed changes to the training program.

R2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each or its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time. *[Risk Factor: High] [Time Horizon: Long-term Planning]*

R2.1. Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority, and Transmission Operator

shall verify each of its System Operator's capabilities to perform the new or modified tasks.

R3. At least every 12 months each Reliability Coordinator, Balancing Authority, and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics (which includes system restoration) using training, drills, exercises, and hands on training using simulators. *[Risk Factor: Medium] [Time Horizon: Long-term Planning]*

C. Measures

M1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence of using a systematic approach to training to establish a new or modify an existing training program(s), as specified in R1.

M1.1 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its company-specific task list, with the date of the last revision, as specified in R1.1.

M1.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and training materials, as specified in R1.2.

M1.3 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection System Operator training records showing the names of the people trained, the title of the training delivered and the dates of delivery to show that it delivered the training, as specified in R1.3.

M1.4 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence (such as instructor observations, trainee feedback. supervisor feedback, course evaluations, learning assessments, or audit results) that it performed a training program evaluation, as specified in R1.4

M2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence to show that it verified that each of its System Operators is capable of performing each assigned task identified in R1.1, as specified in R2. This evidence can be documents such as training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments.

M3. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator has obtained 32 hours of emergency operations training, as specified in R3.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

For Reliability Coordinators and other functional entities that work for the Regional Entity, the ERO shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

1.2. Compliance Monitoring Period and Reset

Not Applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall keep data or evidence to show compliance, as identified below, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

1.4.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall retain its current company-specific task list and any supporting learning objectives and course outlines, training records, and evaluation records since its last compliance audit for Requirement 1, Measure 1.

1.4.2 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall retain training records for each of its System Operators since the last compliance audit for Requirement 2, Measure 2.

1.4.3 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall retain training records for each of its System Operators since the last compliance audit for Requirement 3, Measure 3.

1.4.4 If a Reliability Coordinator, Balancing Authority and Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

R#	Lower VSL	Medium VSL	High VSL	Severe VSL
R1	None	The responsible entity failed to provide evidence of evaluating its training program effectiveness to identify needed changes to its training program(s).	The responsible entity failed to design and develop learning objectives and training materials based on the BES company specific reliability related task list (when developing a new	When developing a new or modifying an existing training program, the responsible entity failed to prepare a company-specific reliability-related task list

R#	Lower VSL	Medium VSL	High VSL	Severe VSL
			or modifying an existing training program).	OR When developing a new or modifying an existing training, the responsible entity failed to deliver training based on the BES company specific reliability related task list.
R2	None	The responsible entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks.	The responsible entity verified at least 70% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks OR The responsible entity failed to verify its system operators' capabilities to perform each new or modified task within six months of making a modification to its BES company-specific reliability related task list.	The responsible entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks.
R3	None	The responsible entity provided at least 32 hours of emergency operations	The responsible entity provided at least 32 hours of emergency	The responsible entity provided 32 hours of emergency

R#	Lower VSL	Medium VSL	High VSL	Severe VSL
		training to at least 90% but less than 100% of its System Operators.	operations training to at least 70% but less than 90% of its System Operators.	operations training to less than 70% of its System Operators OR The responsible entity did not include in its emergency training, the use of drills, exercises, and hands on training using simulators.

E. Regional Variances

None.

Version History

Version	Date	Action	Change Tracking

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

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2. SAR Drafting Team posted SAR for comments on December 7, 2004.
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5. Respond to comments submitted with the initial ballot.	September 1, 2008
6. Conduct a recirculation ballot for 10 days.	September 1–September 10, 2008
7. Post for a 30-day preview for board.	October 1–October 31, 2008

8. Board adoption.	November 15, 2008

A. Introduction

1. **Title:** **System Personnel Training**

2. **Number:** PER-005-1

3. **Purpose:** To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent to perform those reliability-related tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.

4. **Applicability:**

   4.1. Functional Entities:

   4.1.1 Reliability Coordinator.

   4.1.2 Balancing Authority.

   4.1.3 Transmission Operator.

   ~~**4.2.** This standard applies to System Operator positions of the entities listed in 4.1 and their delegates who can directly, or through communications, impact reliability by producing a real-time response from the Bulk Electric System.~~

5. **Proposed Effective ~~Date for Regulatory Approvals:~~ Dates:**

   Effective 36 months after the first day of the first calendar quarter following applicable regulatory approval, or in those jurisdictions where no regulatory approval is required, the Reliability Standard becomes effective 36 months after the first day of the first calendar quarter after Board of Trustee adoption.

   ~~**5.1.**Requirement 3 in the standard shall become effective on the first day of first quarter after applicable regulatory approval (or the Reliability Standard otherwise becomes effective on the first day of first quarter after Board of Trustee adoption in jurisdictions where regulatory approval is not required).~~

   ~~**5.2.**Requirement 2 in the standard shall become effective 18 months after the first day of the first quarter following regulatory approval (or the Reliability Standard otherwise becomes effective 18 months after the first day of the first quarter after Board of Trustee adoption in those jurisdictions where regulatory approval is not required).~~

   ~~**5.3.**Requirement 1 and Requirement 4 shall become effective 36 months after the first day of the first quarter following regulatory approval (or the Reliability Standard otherwise becomes effective 36 months after the first day of the first quarter after Board of Trustee adoption in those jurisdictions where regulatory approval is not required).~~

B. Requirements

R1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall use ~~complete the five phases of~~ a systematic approach to training ~~(SAT) (which includes analysis, design, development, implementation, and evaluation)~~ to establish a new or modify an existing training program(s) for the BES company-specific reliability-related tasks performed by its~~that addresses Bulk Electric~~ System Operators. *[Risk Factor: Medium] [Time Horizon: Long-term Planning]*

~~R2.~~R1.1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall create a list of ~~(~~BES~~)~~ company-specific reliability-related tasks performed by its System Operators. ~~[Risk Factor: Medium] [Time Horizon: Long-term Planning]~~

~~R2.1.~~R1.1.1. Each ~~To create a company-specific list of BES reliability-related tasks, each~~ Reliability Coordinator, Balancing Authority, and Transmission ~~Owner shall select all tasks performed by its System~~ Operator shall update its list of BES company-specific ~~positions from the Generic Task List (provided in Attachment A) and add other BES~~ reliability-related tasks performed by its System Operators at least annually to identify new or modified tasks for inclusion in training~~Operator positions~~.

R1.2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall design and develop learning objectives and training materials based on the task list created in R1.1.

R1.3. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall deliver ~~assess at least annually~~ the training established in R1.2.

R1.4. Each Reliability Coordinator, Balancing Authority, and Transmission~~needs of each System~~ Operator shall conduct an evaluation of ~~position to determine~~ the training program established in R1, to identify any needed changes to the training program.

~~R3.~~R2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each or its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time.~~mis-match between acceptable and actual performance capability.~~ [Risk Factor: *High*~~Medium~~] [Time Horizon: Long-term Planning]

~~R2.1.~~ Within six months of a modification~~The assessment shall include identification of mis-matches between acceptable and actual performance capability that need to be addressed through future training.~~

~~R2.2.~~ ~~The assessment shall include identification~~ of ~~training required to perform new or revised tasks from~~ the BES company-specific reliability ~~-~~related tasks, each.~~.~~

R2.1. ~~Each~~ Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks.

R3. At least every 12 months each Reliability Coordinator, Balancing Authority, and Transmission Operator shall provide each of its System Operators ~~Operator~~ with at least 32 hours ~~annually~~ of emergency operations training applicable to its organization that reflects emergency operations topics (which includes ~~and~~ system restoration) using training, drills, exercises, and hands on training using simulators. [Risk Factor: Medium] [Time Horizon: Long-term Planning]

~~R3.1.~~ ~~The emergency operations and system restoration training shall include the principles and procedures needed for recognizing and responding to emergencies, using drills, exercises or simulations of system conditions in subject areas from the Emergency Operations Topics (provided in Attachment B).~~

~~R3.1.1.~~ ~~Each Reliability Coordinator, Balancing Authority and Transmission Operator shall add or remove topics from the Emergency Operations Topics to reflect emergency operations and system restoration topics that apply to its organization.~~

~~R4.~~ ~~Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify the capabilities of each of its real-time System Operators to perform each assigned task on its list of company-specific BES reliability-related tasks. [Risk Factor: Medium] [Time Horizon: Long-term Planning]~~

C. Measures

M1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence of using a systematic approach to training to establish a new or modify an existing training program(s), as specified in R1.

M1.1 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its company-specific task list, with the date of the last revision, as specified in R1.1.

M1.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and training materials, as specified in R1.2.

M1.3 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection ~~SAT-developed BES~~ System Operator training records showing the names of the people trained, the title of the training delivered and the dates of delivery to show that it delivered the training, as specified in R1.3.

M1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection ~~program with~~ evidence (such as instructor observations, trainee feedback. supervisor feedback, course evaluations, learning assessments, or audit results) that it performed a training program evaluation, as specified in R1.4~~of the following SAT-related outcomes:~~

~~M1.1. Analysis that results in a list of company-specific BES reliability-related tasks and measurable or observable criteria for desired performance for each task~~

~~M1.2. Design and development of training materials that result in learning objectives and content that is derived from results of training analysis~~

~~M1.3. Implementation of the training program, as identified in the training analysis~~

~~M1.4. Evaluations and assessments of training delivered to determine if learning objectives are met~~

M2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence to show that it verified that each of its System Operators is capable of performing each assigned task identified in R1.1~~the results of its latest assessment for each position~~, as specified in R2. This evidence can be documents such as training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments.

~~M3.~~ Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator has obtained 32 hours of emergency operations ~~or system restoration~~ training, as specified in R3.

M3. ~~Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection verification of the capabilities for each real-time System Operator, as specified in R4.~~

D. Compliance

1. Compliance Monitoring Process

~~**1.1. Compliance Monitoring Responsibility**~~

Compliance Enforcement Authority ~~(CEA)~~

For Reliability Coordinators and other functional entities that work for the Regional Entity, the ERO shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

1.1. Compliance Monitoring Period and Reset

Not Applicable.

1.2. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

~~The performance reset period for all requirements is one month.~~

1.3. Data Retention

Each~~For all requirements and measures, each~~ Reliability Coordinator, Balancing Authority, and Transmission Operator shall keep data or ~~retain~~ evidence to show ~~of~~ compliance, as identified below, unless directed by ~~for four years or since~~ its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

1.4.1 ~~most recent on-site compliance audit, whichever is greater.~~ Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall retain its current company-specific task list and~~all data used to show evidence it is following or followed~~ any supporting learning objectives and course outlines, training records, and evaluation records since its last compliance audit for Requirement 1, Measure 1~~mitigation plan associated with this standard~~.

1.4.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall retain training records for each of its System Operators since the last compliance audit for Requirement 2, Measure 2.

1.4.3 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall retain training records for each of its System Operators since the last compliance audit for Requirement 3, Measure 3.

1.4.4 If a Reliability Coordinator, Balancing Authority, and Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

~~The Compliance Monitor shall retain data, including self-certifications, since its last on-site audit and all documentation from other compliance monitoring methods used since the last on-site compliance audit. The Compliance Monitor shall retain any data used in mitigation plans associated with this standard.~~

1.4. Additional Compliance Information

NoneEach Reliability Coordinator, Transmission Operator and Balancing Authority shall demonstrate compliance through self-certification submitted to its Compliance Enforcement Authority annually.

The Compliance Enforcement Authority shall conduct a scheduled on-site review once every three years, and may conduct spot checks and investigations to assess performance.

2. Violation Severity Levels

R#	Lower VSL	Medium VSL	High VSL	Severe VSL
R1	None	The responsible entity failed to provide evidence of evaluating its training program effectiveness to identify needed changes to its training program(s).	The responsible entity failed to design and develop learning objectives and training materials based on the BES company specific reliability related task list (when developing a new or modifying an existing training program).	When developing a new or modifying an existing training program, the responsible entity failed to prepare a company-specific reliability-related task list OR When developing a new or modifying an existing training, the responsible entity failed to deliver training based on the BES company specific reliability related task list.
R2	None	The responsible entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks.	The responsible entity verified at least 70% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks OR	The responsible entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks.

R#	Lower VSL	Medium VSL	High VSL	Severe VSL
			The responsible entity failed to verify its system operators' capabilities to perform each new or modified task within six months of making a modification to its BES company-specific reliability related task list.	
R3	None	The responsible entity provided at least 32 hours of emergency operations training to at least 90% but less than 100% of its System Operators.	The responsible entity provided at least 32 hours of emergency operations training to at least 70% but less than 90% of its System Operators.	The responsible entity provided 32 hours of emergency operations training to less than 70% of its System Operators OR The responsible entity did not include in its emergency training, the use of drills, exercises, and hands on training using simulators.

~~**2.1. Lower: There shall be a lower violation for each subsection in which one or more of the following conditions exist:**~~

~~**2.1.1 None**~~

~~**2.1.2 None**~~

~~**2.1.3** The responsible entity did not add or remove topics from the Emergency Operations Topics that apply to their organization.~~

~~**2.1.4 None**~~

~~**2.2. Moderate: There shall be a moderate violation for each subsection in which one or more of the following conditions exist:**~~

2.2.1 The responsible entity has completed a list of company-specific reliability-related tasks from the Generic Task List (Provided in attachment A), and has started creating a list identifying all other reliability-related task that the company performs, but the list is not complete.

NOTE: If the entity violates R1.1, the entity is also in violation of R1, (failure to perform the Analysis phase of the SAT process).

2.2.2 The responsible entity has determined training required based on the mis-match between acceptable and actual performance capability but has not included the training identified in its current schedule.

2.2.3 The responsible entity provided at least 32 hours of training on emergency operations or system restoration, annually, but did not include training in subject areas listed in Attachment B.

2.2.4 None

2.3. High: There shall be a high violation for each subsection in which one or more of the following conditions exist: The responsible entity has only partially achieved the reliability objective of the requirement and is missing one or more significant elements.

2.3.1 The responsible entity has a system operator training program for all its system operator positions (identified in Section 4.2) but the entity did not use or provide evidence of use of one of the five phases of a SAT process listed below when establishing new system operator training: (R1)

- Analysis that results in a list of company-specific reliability-related tasks and measurable or observable criteria for desired performance for each task
- Design that results in learning objectives
- Develop training content that is derived from results of training analysis and learning objectives.
- Implementation of the training program, as identified in the training analysis
- Evaluations and assessments of training delivered to determine if learning objectives are met

OR

The responsible entity has a system operator training program for all its system operator positions (identified in Section 4.2) but the entity did not use or provide evidence of use of one of the five phases of a SAT process listed below when making modifications to an existing system operator training program:

- Analysis that results in a list of company-specific reliability-related tasks and measurable or observable criteria for desired performance for each task
- Design that results in learning objectives
- Develop training content that is derived from results of training analysis and learning objectives.
- Implementation of the training program, as identified in the training analysis
- Evaluations and assessments of training delivered to determine if learning objectives are met

OR

The responsible entity does not have a system operator training program based on the SAT process for one of its system operator positions (as identified in Section 4.2).

2.3.1.1 The responsible entity has started creating a list or has a partial list identifying its company specific list of reliability related tasks from the generic task list (in Attachment A), but the list is not complete

NOTE: If the entity violates R1.2, the entity is also in violation of R1, (failure to perform the implementation phase of the SAT process).

2.3.2 The responsible entity has not performed an assessment which includes identification of measurable or observable criteria for desired performance to each task for the determination of the training needs for one of its system operating position.

2.3.2.1 The responsible entity has not identified training required based on the mis-match between acceptable and actual performance capability.

2.3.3 The responsible entity provided to its system operators at least, 32 hours of emergency operations or system restoration training, annually, but not all its System Operators has completed or evidence shows will not have completed the required annual training.

2.3.3.1 The responsible entity provided at least 32 hours of training on emergency operations or system restoration, but the training did not include training in principles and procedures needed for effectively recognizing and responding to emergencies **OR**

The emergency operations or system restoration training delivery method did not include drills, exercises, or simulations of system conditions,

2.3.4 The responsible entity has performed an assessment of its System Operator's capabilities to perform each identified task that is on its company specific reliability related task, but not for each of its System Operators.

2.4. Severe: There shall be a severe violation for each subsection in which one or more of the following conditions exist. The responsible entity has failed to meet the reliability objective of the requirement.

2.4.1 The responsible entity has a system operator training program for all its system operator positions (identified in Section 4.2) but the entity did not use or provide evidence of use of two of the five phases of a SAT process listed below when establishing new system operator training:

- Analysis that results in a list of company specific reliability related tasks and measurable or observable criteria for desired performance for each task
- Design that results in learning objectives
- Develop training content that is derived from results of training analysis and learning objectives.
- Implementation of the training program, as identified in the training analysis
- Evaluations and assessments of training delivered to determine if learning objectives are met

~~**OR**~~

~~The responsible entity has a system operator training program for all its system operator positions (identified in Section 4.2) but the entity did not use or provide evidence of use of two of the five phases of a SAT processes listed below when making modifications to an existing system operator training program. :~~

- ~~Analysis that results in a list of company-specific reliability-related tasks and measurable or observable criteria for desired performance for each task~~
- ~~Design that results in learning objectives~~
- ~~Develop training content that is derived from results of training analysis and learning objectives.~~
- ~~Implementation of the training program, as identified in the training analysis~~
- ~~Evaluations and assessments of training delivered to determine if learning objectives are met~~

~~**OR**~~

~~The responsible entity does not have a SAT program for its system operators.~~

~~**2.4.1.1** The responsible entity failed to create a company specific list of reliability related tasks from the generic task list. (in attachment A) **OR**~~

~~The responsible entity failed to create a list of all other reliability-related task the company performs.~~

~~**2.4.2** The responsible entity has not performed an assessment which includes identification of measurable or observable criteria for desired performance to each task for the determination of the training needs for two of its system operating position **OR**~~

~~The responsible entity has not performed an annual assessment as required by R2.~~

~~**2.4.3** The responsible entity did not provide to its system operators at least 32 hours of emergency operations or system restoration training **OR**~~

~~The responsible entity has provided 32 hours of emergency operations and system restoration training but the training has not provided annually.~~

~~**2.4.4** The responsible entity has not performed an assessment on its System Operator's capabilities to perform each identified task that is on its company-specific reliability-related task list~~

E. Regional Variances

None.

Version History

Version	Date	Action	Change Tracking

Attachment A: Generic Task List

Attachment A presents a generic list of tasks to assist with the creation of a company-specific list of reliability-related tasks. Entities shall add or remove from the list to create a list of reliability-related tasks applicable to their organization.

General Control Center Operations Tasks:

ITEM#	TYPE OF ACTIVITY	GENERAL CONTROL CENTER OPERATIONS TASKS
1	Communication	Provide real-time system information to the Reliability Coordinator.
2	Communication	Coordinate reliability processes and actions with and among other Reliability Coordinators.
3	Communication	Issue reliability alerts to Generator Operators, Load-Serving Entities, Transmission Operators, Transmission Service Providers, Balancing Authorities, Regional Councils, and NERC
4	Communication	Produce and publish system status information (e.g., OASIS, IRN, and RCIS)
5	Communication	Prepare and provide data to reliability coordinator for later inclusion in NERC reports
6	Communication	Ensure all balancing authorities or transmission operators are aware of solar magnetic disturbances (SMD) forecast information
7	Communication	Communicate the status of system conditions with appropriate reliability coordination offices
8	Communication	Communicate the status of system conditions with appropriate balancing authorities and/or transmission operators
9	Communication	Report disturbances to NERC following the guidelines within the U.S. Department of Energy's most recent Power System Emergency Reporting Procedures
10	Communication	Communicate with interconnected systems during normal and emergency conditions using established procedures
11	Communication	Coordinate operations between the host balancing authority or transmission operator and any transmission operating entities that exist within the host balancing authority and/or transmission operator's boundaries to ensure transmission reliability
12	Communication	Report to the regional council staff within 24 hours after a disturbance affecting your system has occurred
13	Communication	Report any disturbances or unusual occurrences, suspected or determined to be caused by sabotage to the appropriate systems, governmental agencies, and regulatory bodies
14	Communication	Coordinate reliability processes and actions with and among other reliability coordinators

ITEM#	TYPE OF ACTIVITY	GENERAL CONTROL CENTER OPERATIONS TASKS
15	Communication	Utilize the voice and data telecommunication systems as required while adhering to Interconnection and regional operating procedures
16	Monitor	Monitor real-time operational information from balancing authorities and transmission operators.
17	Monitor	Interpret SCADA-generated alarms and information, and then take appropriate actions to maintain system reliability
18	Monitor	Check data and verify accuracy of each metering point used by Supervisory Control and Data Acquisition (SCADA)
19	Monitor	Monitor performance of power system equipment and call out system personnel when appropriate
20	Monitor	Monitor system load and generation
21	Monitor	Ensure all special protection systems and special design features are in service as needed
22	Monitor	Monitor real-time market prices for accuracy
23	Monitor	Monitor and respond to alarms from status of special protective schemes
24	Monitor	Verify data used in operation
25	Monitor	Monitor the RCIS and respond to any information provided
26	Monitor	Monitor all reliability related system parameters, such as MW, MVAR, voltage, and amps to determine system conditions
27	Monitor	Monitor and control access to the control center to prevent sabotage
28	Monitor	Monitor all reliability related data within a reliability coordinator area
29	Monitor	Monitor and periodically test normal and emergency telecommunication systems that link with interconnected systems to ensure communications are adequate and continuous
30	Monitor	Monitor and respond to telecommunication alarms or failures and notify the appropriate personnel
31	Monitor	Monitor and maintain defined voltage profiles to ensure system reliability
32	Monitor	Monitor and validate telemetry data for accuracy
33	Monitor	Monitor control center systems and support equipment and call out appropriate assistance as needed
34	Operating	Analyze operations log, and oral information from system operator leaving shift
35	Operating	Maintain records of special protection system, special design feature, and transmission protection system mis-operations
36	Operating	Evaluate impact of current weather conditions on system operations

ITEM#	TYPE OF ACTIVITY	GENERAL CONTROL CENTER OPERATIONS TASKS
37	Operating	Evaluate system conditions and apply operating guides when applicable
38	Operating	Evaluate the extent of an outage or disturbance and develop a plan of restoration
39	Operating	Identify operating problems and deficiencies, and recommend corrective measures
40	Operating	Respond to performance survey requests
41	Operating	Provide input to ensure that the operations computer database is up to date
42	Operating	Prepare daily reports and logs generated to meet company and regulatory requirements
43	Operating	Adjust control systems to compensate for any equipment errors or failures
44	Operating	Perform same-day reliability analysis of the electric system
45	Operating	Perform next-day reliability analysis of the electric system
46	Operating	Analyze and authorize requests for equipment outages
47	Operating	Enforce operational reliability requirements
48	Operating	Compile regional system data reports
49	Operating	Operate primary and backup telecommunications systems as required
50	Operating	Schedule system telecommunications, telemetering, protection, and control equipment outages to ensure system reliability
51	Operating	Maintain current knowledge of power system modifications and additions
52	Operating	Ensure that every effort is made to remain connected to the Interconnection
53	Operating	Take action as necessary to protect the system if it becomes endangered by remaining interconnected
54	Operating	Apply guidelines, including lists of utility contact personnel, for reporting disturbances due to sabotage events
55	Operating	Direct to the appropriate entities those options necessary to relieve reliability threats and violations in a reliability coordinator area
56	Operating	Ensure the accuracy of current system status by updating necessary operating procedures, diagrams, and map board
57	Operating	Provide input to system planners to help maintain accuracy in system models used for reliability assessments
58	Operating	Evaluate, test, and/or confirm the accuracy of reliability assessment tools
59	Operating	Utilize interconnected operation services as needed to maintain system reliability

ITEM#	TYPE OF ACTIVITY	GENERAL CONTROL CENTER OPERATIONS TASKS
60	Operating	Utilize reactive resources from transmission and generator owners to maintain acceptable voltage profiles
61	Operating	Enforce compliance of operating reliability limits
62	Operating	Arm or verify that special protection systems are armed to meet system conditions (contingencies) as needed
63	Operating	Test, evaluate, and operate backup control center facilities/systems as needed
64	Operating	Implement procedures for the recognition of sabotage events on your facilities and multi-site sabotage affecting larger portions of the Interconnection
65	Operating	Implement specified procedural actions in the event of a FERC Standards of Conduct violation
66	Procedure	Complies with reliability requirements specified by Reliability Coordinator.
67	Procedure	Evaluate current operating practices and make recommendations for improvement to meet NERC reliability standards' requirements
68	Procedure	Implement system restoration procedures
69	Procedure	Maintain a working knowledge of regional, NERC, FERC, and company specific guides, policies, and standards

Transmission Tasks:

ITEM#	TYPE OF ACTIVITY	TRANSMISSION TASKS
1	Limits	Monitor and operate or direct the operations of the transmission system within equipment and facility ratings.
2	Operating	Notify Generator Operators of transmission system problems in compliance with NERC requirements.
3	Outage	Adjust transmission configuration to implement proposed transmission system outage plan
4	Outage	Build contingency case for scheduled outages for next day
5	Outage	Coordinate planned and unplanned transmission outages with all impacted systems to ensure transmission system reliability
6	Outage	Direct transmission operators to revise maintenance plans as required, and as permitted by agreements
7	Outage	Implement transmission outages to ensure system reliability
8	Outage	Initiate the cancellation of scheduled transmission work when system conditions require
9	Outage	Interpret relay targets, oscillograph readings, breaker operations, and field observations to determine proper restoration methods during forced outages
10	Outage	Notify others of any planned transmission changes that may impact the operation of their facilities
11	Outage	Perform reliability analysis to determine impact of both scheduled and forced transmission outages
12	Outage	Receive and review transmission maintenance plans from transmission operators for reliability assessment
13	Outage	Report transmission outages to the reliability coordinators and other affected utilities
14	Limits	Coordinate with impacted systems, and monitor actual and/or expected operating reliability limit violations and respond as required
15	Limits	Develop or calculate system operating limits
16	Limits	Direct transmission operators to take actions to mitigate interconnection reliability operating limits
17	Limits	Ensure all tie-line limits are not exceeded
18	Limits	Ensure that transmission contract paths are not exceeded
19	Limits	Identify, communicate, and direct actions to relieve reliability threats and limit violations in the reliability coordinator area
20	Limits	Initiate control actions resulting from thermal limit violations, considering the responsiveness of the system
21	Limits	Monitor and respond to transmission system equipment rating violations
22	Limits	Monitor bulk transmission elements to determine constraints and operating limit violations
23	Limits	Monitor major transmission lines, flow gates, and scheduling paths

ITEM#	TYPE OF ACTIVITY	TRANSMISSION TASKS
24	Limits	Coordinate with transmission operators and transmission service providers on real-time transmission system limitations.
25	Limits	Monitor interconnection reliability operating limits .
26	Limits	Recalculate interconnection reliability operating limits based on current or future conditions, and according to transmission and generator owners' specified equipment ratings
27	Limits	Develop interconnected operating reliability limits
28	Operating	Analyze/research any bulk system disturbances affecting your system
29	Operating	Respond to disturbance conditions
30	Operating	Monitor and operate transmission system within its designed capabilities
31	Operating	Monitor radio system for calls requiring response
32	Operating	Monitor system frequency and initiate a hotline conference call when frequency error exceeds specified limits
33	Operating	Monitor the condition of the transmission system and respond as required (including shedding firm load) to avoid voltage collapse and/or Interconnection separation
34	Operating	Monitor the voltages, and coordinate the reactive dispatch of transmission facilities, and the interconnections with neighboring systems
35	Operating	Develop special operating procedures to allow continued operation of the transmission system based on the results of a reliability analysis
36	Operating	Direct and/or control all energization and/or modification of new or existing facilities
37	Operating	Direct and/or control phase shifting transformer taps
38	Operating	Direct and/or control transmission switching
39	Operating	Direct and/or regulate the operation of the transmission system
40	Operating	Ensure adequate transmission facilities are available to meet external and internal requirements (real-time or hourly)
41	Operating	Implement corrective actions from transmission problems resulting from an underlying sub-transmission or distribution event (local reliability issues)
42	Operating	Maintain constant awareness of neighboring transmission system conditions
43	Operating	Maintain safe operating conditions for all persons and property within the transmission system
44	Operating	Operate control equipment to continuously and accurately meet its system and Interconnection control obligation and measure its performance
45	Operating	Perform reliability analysis (actual and contingency) for the reliability coordinator area
46	Operating	Provide oversight of transmission operational plans, direct revisions as required, and as permitted by agreements
47	Operating	Respond to solar magnetic disturbance (SMD) warnings as required by system

ITEM#	TYPE OF ACTIVITY	TRANSMISSION TASKS
		operating procedures
48	Operating	Specify interconnected operation services requirements for transmission reliability (e.g., reactive requirements, location of operating reserves)
49	Operating	Supervise and coordinate all activity at switching stations, generating stations, and transmission switchyards
50	Operating	Utilize load flow modeling tools to determine power flow changes and optimum system configurations during normal and emergency conditions
51	Voltage	Deploy reactive resources to maintain acceptable voltage profiles.
52	Voltage	Coordinate voltage reduction as requested by the balancing authority or as directed by the reliability coordinator.
53	Voltage	Direct voltage reduction
54	Voltage	Approve system voltage regulating equipment outages to ensure adequate system voltage and system reliability is maintained
55	Voltage	Coordinate operation of voltage control equipment with interconnected utilities
56	Voltage	Direct transmission operators to reduce voltage or shed load if needed to ensure balance in real-time
57	Voltage	Identify and respond to conditions likely to lead to voltage collapse
58	Voltage	Implement voltage reductions as directed by a transmission operator
59	Voltage	Minimize system voltage decay and prevent cascading outages
60	Voltage	Schedule system voltage regulating equipment outages to ensure adequate system voltage and system reliability is maintained
61	Voltage	Utilize HVDC systems' reactive power control capabilities as a voltage control tool when appropriate
62	Voltage	Utilize transmission line removal as a voltage control tool only if system studies indicate that system reliability will not be degraded below acceptable levels
63	Limits	Request reliability coordinator to mitigate equipment overloads.
64	Congestion	Identify special operating procedures that may be necessary to maintain acceptable transmission loading
65	Congestion	Initiate line loading relief procedures upon request of members of the Interconnection using appropriate priority levels
66	Congestion	Initiate transmission loading relief procedures to relieve potential or actual loading on a constrained facility
67	Congestion	Manage transmission loading by directing the redispatch of generators or reconfiguring the transmission system to mitigate impact, including the load curtailment process
68	Congestion	Notify all affected areas that line loading relief has been requested, and that corrective actions are required
69	Congestion	Request the reliability coordinator to mitigate equipment overloads
70	Congestion	Run day-ahead congestion management market

ITEM#	TYPE OF ACTIVITY	TRANSMISSION TASKS
71	Congestion	Run hour-ahead congestion management market to allocate available transmission capacities
72	Congestion	Use the results from an available transfer capability (ATC) calculator to determine the impact of an interchange transaction on the transmission system
73	Congestion	Utilize the Interchange Distribution Calculator to determine transaction curtailments for transmission load relief
74	Congestion	Calculate and post changes in available transmission capacity
75	Congestion	Implement terms of interruption for transmission services according to contractual provisions
76		Direct load shedding
77	Load	Coordinate load shedding as requested by the balancing authority or as directed by the reliability coordinator.
78	Load	Issue corrective actions (e.g., curtailments or load shedding) to transmission operators, transmission service providers
79	Load	Adjust both short-term and future forecasts using actual load data and correction factors
80	Load	Call for interruptible loads to be shed when required
81	Load	Collect individual load profiles and forecasts of end-users energy requirements, and develop overall load profiles
82	Load	Compile load forecasts from load-serving entities within a balancing area
83	Load	Coordinate load shedding, and load restoration with, or as directed by the reliability coordinator
84	Load	Coordinate or direct use of controllable loads that have been bid as interconnected operations services
85	Load	Develop both short-term and future forecasts using actual load data and correction factors
86	Load	Monitor an area's estimated and actual loads
87	Load	Respond to light load conditions

Generation Tasks:

ITEM#	TYPE OF ACTIVITY	GENERATION TASKS
1	Balancing	Direct resources (generator operators and load-serving entities) to take action to ensure balance in real time
2	Balancing	Ensure adequate generation capacity is available to meet external and internal requirements (real-time, or hourly)
3	Balancing	Respond to manual time error correction requests by regional time error monitor
4	Balancing	Allocate generation resources to meet system requirements
5	Balancing	Allocate load resources to meet system requirements
6	Balancing	Monitor AGC to ensure compliance with NERC CPS1 and CPS2 standards
7	Balancing	Perform system configuration evaluation for dispatching of imbalance energy based on real-time conditions
8	Balancing	Minimize inadvertent flows, losses, and CPS1 and CPS2 criteria violations
9	Balancing	Monitor AGC performance to diagnose and identify telemetry problems
10	Balancing	Compare actual generator output with anticipated schedules, and take action to account for the difference
11	Balancing	Dispatch generation resources economically while maintaining system reliability
12	Balancing	Monitor time error and initiate corrections
13	Balancing	Manually calculate ACE as necessary
14	Balancing	Publish next-day market results
15	Balancing	Monitor ramping capability for requested interchange schedules
16	Balancing	Ensure that the balancing authority is satisfying its Interconnection frequency regulation obligation
17	Balancing	Ensure that the balancing authority's frequency bias value is continually set at the proper value
18	Balancing	Monitor ACE to determine if the calculation is correct
19	Balancing	Inform the appropriate balancing authority of the status of its overlap regulation service
20	Balancing	Verify that the regulating capacity is distributed equitably over as many units as possible
21	Balancing	Manage generation biasing to avoid reliability limit violations
22	Balancing	Monitor response of units to the AGC signals
23	Balancing	Operate the AGC system in tie-line bias control mode unless such operation is adverse to system or Interconnection reliability
24	Balancing	Obtain replacement energy upon a loss of any major generating or interchange resource
25	Balancing	Respond to generation losses, recognizing reliability restrictions to effectively maintain tie-line flows
26	Balancing	Apply the principles of economic dispatch to generating units

ITEM#	TYPE OF ACTIVITY	GENERATION TASKS
27	Balancing	Respond to generation losses, recognizing economic and reliability restrictions
28	Balancing	Publish hour-ahead market results
29	Balancing	Publish day-ahead market results
30	Balancing	Declare an Energy Emergency Alert (EEA) when generation resources and reserves are inadequate to meet demand
31	Balancing	Consult with other impacted balancing authorities, adjust the AGC algorithm for the proper time periods (on-peak and off-peak) to account for known tie-line metering errors
32	Balancing	Review generation commitments, dispatch, and load forecasts
33	Balancing	Receive and review generation operations plans and commitments from balancing authorities for reliability assessment
34	Balancing	Control or direct generation biasing to provide overlap regulation service to other balancing authorities in accordance with contractual obligations
35	Balancing	Ensure adequate energy resources are available to meet external and internal requirements (real-time or hourly)
36	Congestion	Direct the reduction or shedding of load if needed to ensure balance within its balancing authority area.
37	Congestion	Direct generator operators to implement redispatch for congestion management.
38	Congestion	Issue corrective actions (e.g., curtailments or load shedding) to balancing authorities.
39	Congestion	Procure alternate sources of energy when reliability coordinator curtails transactions or calls for generation re-dispatch
40	Congestion	Issue generation dispatch adjustments to mitigate transmission congestion
41	Congestion	Direct balancing authorities to take actions to mitigate interconnection reliability operating limits
42	Congestion	Control, direct, or manage generation dispatch to avoid transmission reliability limit violations
43	Operating	Monitor output of units ensuring that MW output is within operating limits
44	Operating	Monitor output of units ensuring that MVAr output is within operating limits
45	Operating	Operate generation to minimize inadvertent power flow
46	Operating	Operate the SCADA and analog systems to control generation and monitor telemetered information
47	Operating	Select proper mode of automatic generation control for system conditions
48	Operating	Suspend automatic generation control as required
49	Operating	Monitor system fuel reserves
50	Operating	Communicate with generating station regarding work for anticipated increases or decreases that may cause limit changes
51	Operating	Monitor generation production data for correctness and ensure that records are developed and maintained as required

ITEM#	TYPE OF ACTIVITY	GENERATION TASKS
52	Operating	Monitor output of units ensuring that MW output is operating according to schedules
53	Operating	Monitor output of units ensuring that MVAr output is operating according to schedules
54	Operating	Supervise and coordinate all activity at generating stations
55	Operating	Monitor hydro generation and pond levels
56	Operating	Monitor generating unit governors to verify their operational status
57	Operating	Initiate manual control of generation, and maintain scheduled interchange following an AGC system component failure
58	Operating	Operate power facilities in compliance with environmental standards (e.g., air quality, wildlife)
59	Operating	Ensure that the AGC and other vital control performance equipment are functioning properly when using the backup power supply following the loss of the primary power supply
60	Operating	Verify the accuracy of the AGC tie-line metering by comparing hourly MWh meter totals to the totals derived from tie-line meter registers
61	Operating	Monitor the status and availability of generator voltage regulators and/or power system stabilizers, and respond as required to deficiencies that may impact system reliability
62	Operating	Test/verify the reactive capability of generating units
63	Operating	Administer generator start-up and shutdown schedules
64	Operating	Report the status of generator automatic voltage regulators and/or power system stabilizers to transmission operators
65	Operating	Provide oversight of generation operational plans, direct revisions as required, and as permitted by agreements
66	Operating	Validate adequacy of resource plans (in near real time)
67	Operating	Procure interconnected operations services from generator owners to ensure voltage support from generating resources is adequate
68	Operating	Notify generator operators of voltage limitations, or equipment overloads that may impact, or are impacting generator operations
69	Outage	Inform the reliability coordinator and impacted balancing authorities of interchange schedule interruptions due to generation or load interruptions within its balancing authority area.
70	Outage	Plan next-day generation required to implement a proposed outage
71	Outage	Implement terms of interruption for generation services according to contractual provisions
72	Outage	Implement or delay generation outages to ensure system reliability
73	Outage	Coordinate ramp down of unit going on planned outage
74	Outage	Adjust generation levels to implement proposed transmission system outage plan
75	Outage	Perform reliability analysis to determine impact of both scheduled and forced

ITEM#	TYPE OF ACTIVITY	GENERATION TASKS
		generation outages
76	Outage	Separate or shut down generators that are unsafe to operate during or after an area disturbance
77	Outage	Direct generation operators to revise maintenance plans as required, and as permitted by agreements
78	Reserves	Apply operating reserves when needed
79	Reserves	Respond to reserve sharing group requests for emergencies
80	Reserves	Perform day-ahead ancillary services auction
81	Reserves	Produce list of resources to meet additional energy requirements (from ancillary service market) to purchase in real time
82	Reserves	Monitor and analyze regional reactive reserve availability
83	Reserves	Perform instantaneous reserve checks
84	Reserves	Dispatch operating reserves to alleviate system emergency conditions
85	Reserves	Perform hour-ahead ancillary services auction
86	Reserves	Monitor and analyze regional operating reserves availability
87	Reserves	Reestablish required operating reserve levels as soon as possible following a contingency that results in operating reserve usage
88	Reserves	Administer performance tests for generating resources providing ancillary services (e.g., spinning, regulation, unit ramp rates)
89	Reserves	Determine required quantities of ancillary services
90	Reserves	Determine reserves needed for the next hour
91	Reserves	Determine reserves needed for the next day
92	Reserves	Determine reserves needed for future days (long term)
93	Reserves	Monitor reactive reserve levels to ensure adequate reactive reserves exist and are properly located to provide for adequate voltage levels under normal and emergency conditions
94	Reserves	Restore reactive reserves to acceptable levels as soon as possible after use
95	Reserves	Ensure adequate spinning and operating reserves are on line
96	Reserves	Ensure adequate spinning and/or operating reserves are dispersed throughout the system
97	Reserves	Monitor available operating reserves and take corrective actions to correct deficiencies

~~*Interchange Tasks:*~~

~~ITEM#~~	~~TYPE OF ACTIVITY~~	~~INTERCHANGE TASKS~~
~~1~~	~~Communication~~	~~Communicate with real-time scheduler regarding the purchase of resources~~
~~2~~	~~Communication~~	~~Notify source balancing authority and transmission service providers, or transmission operators when an interchange transaction must be modified or terminated~~
~~3~~	~~Communication~~	~~Notify intermediate balancing authorities when an interchange transaction must be modified or terminated~~
~~4~~	~~Communication~~	~~Notify participants of transaction curtailments or adjustments observing NERC communication protocols~~
~~5~~	~~Communication~~	~~Notify sink balancing authority or transmission service provider when an interchange transaction needs to be modified or terminated~~
~~6~~	~~Communication~~	~~Notify the interchange authority when interchange transactions are cancelled or terminated~~
~~7~~	~~Congestion~~	~~Curtail, terminate, or modify interchange transaction requests that aggravate operating limits~~
~~8~~	~~Congestion~~	~~Curtail transactions as directed across interfaces~~
~~9~~	~~Congestion~~	~~Ensure that the maximum net scheduled interchange with other balancing authorities does not exceed the available transfer capability~~
~~10~~	~~Congestion~~	~~Ensure that all curtailments are properly applied per reliability coordinators instructions~~
~~11~~	~~Congestion~~	~~Analyze the impact of proposed requests for transmission service and interchange schedules on the bulk power system~~
~~12~~	~~Congestion~~	~~Reestablish curtailed interchange transactions with affected balancing authorities or transmission operators~~
~~13~~	~~Congestion~~	~~Coordinate reallocation and reloading of interchange transactions during transmission loading relief procedures~~
~~14~~	~~Monitor~~	~~Monitor status of NERC interchange transaction tags to ensure timely approval and implementation~~
~~15~~	~~Operating~~	~~Arrange transactions for energy to serve projected demand~~
~~16~~	~~Operating~~	~~Determine proper use of dynamic schedules of remote generating units as to their contribution to operating reserves~~
~~17~~	~~Operating~~	~~Manually calculate net interchange when needed~~
~~18~~	~~Operating~~	~~Determine energy excess after meeting load, reserves, and contract obligations~~
~~19~~	~~Operating~~	~~Verify the accuracy of time error monitoring equipment~~
~~20~~	~~Operating~~	~~Maintain the confidentiality of interchange transactions~~
~~21~~	~~Operating~~	~~Protect the confidentiality of all interchange transaction information~~
~~22~~	~~Operating~~	~~Check inadvertent interchange accounts with other balancing authorities at the end of each day~~

ITEM#	TYPE OF ACTIVITY	INTERCHANGE TASKS
23	Operating	Ensure that all appropriate transmission rights are assigned to all energy schedules (e.g., OASIS reservations) prior to their implementation
24	Operating	Agree upon daily schedule totals and energy imbalance totals with balancing authorities or transmission operators and other schedulers as needed
25	Operating	Assess, approve, or deny interchange transaction requests based on reliability analysis from the ATC calculator
26	Operating	Create NERC interchange transaction tag with all required information
27	Operating	Implement or terminate interchange transactions when needed
28	Operating	Adjust interchange transactions
29	Operating	Monitor the electronic (interchange) tagging system for accuracy of information (e-tagging)
30	Operating	Ensure all import and export schedule totals are checked for accuracy and correctness with each utility at the end of the day
31	Operating	Ensure interchange transactions are conducted in accordance with regional and NERC standards
32	Operating	Implement inadvertent interchange payback schedules with other entities
33	Operating	Submit a request to obtain the necessary transmission reservations to implement transactions
34	Operating	Manually calculate ACE as necessary
35	Operating	Adjust transfers across interfaces to maintain system reliability
36	Operating	Submit NERC interchange transaction tag to transmission providers and balancing authority or transmission operators on the scheduling path within proper timeframe
37	Operating	Secure appropriate transmission rights in response to system emergencies
38	Operating	Enter interchange transactions into the control area's scheduled interchange
39	Operating	Coordinate with any controlled interface operators (e.g., DC ties) that are part of an interchange transaction-scheduling path
40	Operating	Participate in system planning studies to determine transfer capabilities and operating limits
41	Operating	Check and validate hourly tie-line data
42	Operating	Monitor inadvertent accumulations in both the on-peak and off-peak accounts
43	Operating	Maintain knowledge of existing and proposed Interconnection agreements and contracts
44	Operating	Maintain accurate settlement records for bulk power sales and purchases
45	Operating	Apply tariffs associated with rates and services uniformly to all parties
46	Operating	Evaluate and respond to customer requests for transmission and ancillary services via the OASIS
47	Operating	Ensure that the ramp rate, start and end times, energy profile, and losses are communicated to all parties in the transaction

ITEM#	TYPE OF ACTIVITY	INTERCHANGE TASKS
48	Operating	Identify potential parallel flow impacts on pending interchange
49	Operating	Approve interchange transactions based upon a reliability perspective
50	Operating	Monitor dynamic energy schedules for the appropriate use of transmission rights
51	Operating	Administer interchange scheduling and recordkeeping requirements with interconnected balancing authorities or transmission operators or other utilities
52	Operating	Implement interchange schedules
53	Operating	Approve or deny bilateral schedules from the reliability perspective
54	Operating	Confirm and approve interchange transactions from ramping ability perspective
55	Operating	Enter interchange transaction information into reliability assessment tools
56	Operating	Determine and post available transfer capability values
57	Operating	Secure energy and transmission services to serve end-use customers
58	Operating	Perform after-the-hour checkout of actual and scheduled interchange with adjacent balancing authorities
59	Operating	Approve or deny transmission service requests in accordance with any tariff requirements (OASIS)
60	Operating	Ensure transmission reliability margins, total transfer capabilities and available transfer capabilities are correctly posted

Emergency Operations Tasks:

ITEM#	TYPE OF ACTIVITY	EMERGENCY OPERATIONS TASKS
1	Capacity	Request emergency energy upon loss of a resource
2	Capacity	Respond to capacity deficiency
3	Capacity	Respond to loss of energy resources within allowable regional or pool timeframe
4	Capacity	Prepare for a capacity emergency by bringing on all available generation
5	Capacity	Prepare for a capacity emergency by postponing equipment maintenance
6	Capacity	Prepare for a capacity emergency by scheduling emergency energy purchases
7	Capacity	Prepare for a capacity emergency by reducing load
8	Capacity	Prepare for a capacity emergency by initiating voltage reductions
9	Capacity	Prepare for a capacity emergency by requesting emergency assistance from other systems
10	Capacity	Schedule available emergency assistance with as much advance notice as possible given a capacity emergency
11	Capacity	Utilize the assistance provided by the Interconnection's frequency bias (in a capacity emergency) only for the time period necessary to utilize operating reserves
12	Capacity	Utilize the assistance provided by the Interconnection's frequency bias (in a capacity emergency) only for the time period necessary to analyze ability to recover using own resources
13	Capacity	Utilize the assistance provided by the Interconnection's frequency bias (in a capacity emergency) only for the time period necessary to schedule emergency assistance from others
14	Freq	Direct corrective actions to correct abnormal frequency
15	Load Shed	Manually shed load to alleviate system emergency conditions
16	Load Shed	Following the activation of automatic load shedding schemes, restore system load as appropriate for current system conditions and in coordination with adjacent systems
17	Load Shed	Following the activation of automatic load shedding schemes, shed additional load manually if there is insufficient generation to support the connected load
18	Load Shed	Following the activation of automatic load shedding schemes, monitor system voltage levels to ensure high voltage conditions do not develop
19	Load Shed	Following the activation of automatic load shedding schemes, monitor system frequency to ensure high frequency conditions do not develop
20	Load Shed	Following the activation of automatic load shedding schemes, monitor the performance of any automatic load restoration relays
21	Load Shed	Following the activation of automatic load shedding schemes, resynchronize transmission at preplanned locations if possible
22	Load Shed	Following the activation of automatic load shedding schemes, disable automatic underfrequency relays if system conditions warrant
23	Load Shed	Direct distribution providers to shed load when required for system reliability

ITEM#	TYPE OF ACTIVITY	EMERGENCY OPERATIONS TASKS
24	Load Shed	Use manual load shedding to prevent imminent separation from the Interconnection due to transmission overloads or to prevent voltage collapse
25	Procedure	Implement emergency procedures.
26	Procedure	Notify the reliability coordinator of the implementation of its own emergency procedures.
27	Procedure	Comply with reliability coordinators' instructions during emergency conditions
28	Procedure	Direct implementation of emergency procedures
29	Procedure	Maintain knowledge of existing and proposed emergency assistance agreements and contracts
30	Procedure	Mandate the sale or purchase of energy to optimize reliability
31	Procedure	Respond to system emergencies and frequency deviations to meet local, regional, and NERC DCS requirements
32	Procedure	Notify appropriate personnel or departments in event of an emergency
33	Procedure	Perform or direct actions such as starting generation, canceling pre-scheduled maintenance, schedule interchange, or shed load to return the system to a secure state
34	Procedure	Perform regular testing of emergency procedures to determine preparedness and alertness of shift personnel
35	Procedure	Provide emergency services coordination for field personnel
36	Procedure	Respond to generation losses, recognizing economic and reliability restrictions to effectively maintain tie-line flows
37	Procedure	Respond to requests for emergency assistance from neighboring systems
38	Procedure	Declare system emergencies
39	Procedure	Develop and/or implement contingency plans when facilities/equipment are forced out of service
40	Procedure	Formulate a plan to implement corrective actions when equipment ratings are exceeded or anticipated to be exceeded
41	Procedure	Use sub-regional, regional, and NERC hotline to coordinate actions during emergency conditions
42	Procedure	Schedule emergency energy when needed and create interchange transaction tags within one hour
43	Procedure	Coordinate response to system emergencies
44	Procedure	Request emergency assistance from neighboring systems
45	Procedure	Assume sole control of designated telecommunication systems for use during an emergency
46	Procedure	Implement emergency procedures related to generating resources within a balancing area as directed by the reliability coordinator
47	Restoration	Direct the restoration of the transmission system following a major system outage, load shedding, islanding, or blackout

ITEM#	TYPE OF ACTIVITY	EMERGENCY OPERATIONS TASKS
48	Restoration	Ensure adequate protective relaying exists during all phases of the system restoration sequence
49	Restoration	Test or simulate system restoration procedures to validate restoration plans
50	Restoration	Following a partial or total system shutdown, implement the appropriate provisions and procedures of the system's restoration plan in a coordinated manner with adjacent systems
51	Restoration	Following a partial or total system shutdown, arrange for start-up and/or emergency power for generation units as required
52	Restoration	Following a partial or total system shutdown, arrange for and utilize emergency (backup) telecommunications facilities as required
53	Restoration	Following a partial or total system shutdown, restore the integrity of the Interconnection as soon as possible
54	Transmission	Formulate a plan to implement corrective actions when an operating reliability limit violation is anticipated
55	Transmission	Determine the cause and extent of transmission system disturbances and interruptions and the impact on other facilities
56	Transmission	Apply relief measures as necessary to permit re-synchronizing and reconnecting to the Interconnection when separated from the Interconnection
57	Transmission	Use manual load shedding to prevent imminent separation from the Interconnection due to transmission overloads, or to prevent voltage collapse
58	Transmission	Implement load shedding as directed by a transmission operator
59	Transmission	Identify and take appropriate actions when partial or full system islanding occurs
60	Voltage	Implement voltage reductions to alleviate system emergency conditions
61	Voltage	Identify and take appropriate actions when a partial or full system voltage collapse occurs

Attachment B: Emergency Operations Topics

These topics are identified as meeting the topic criteria for Emergency Operations training per Requirement 3 of this standard.

A. Recognition and Response to System Emergencies

1. Emergency drills and responses
2. Communication tools, protocols, coordination
3. Operating from backup control centers
4. System operations during unstudied situations
5. System Protection
6. Geomagnetic disturbances weather impacts on system operations
7. System Monitoring – voltage, equipment loading
8. Real-time contingency analysis
9. Offline system analysis tools
10. Monitoring backup plans
11. Sabotage, physical, and cyber threats and responses

B. Operating Policies Related to Emergency Operations

1. NERC standards that identify emergency operations practices (e.g. EOP Standards)
2. Regional reliability operating policies
3. Sub-regional policies and procedures
4. ISO/RTO policies and procedures

C. Power System Restoration Philosophy and Practices

1. Black start
2. Interconnection of islands – building islands
3. Load shedding – automatic (under-frequency and under-voltage) and manual
4. Load restoration philosophies

D. Interconnected Power System Operations

1. Operations coordination
2. Special protections systems
3. Special operating guides
4. Voltage and reactive control, including responding to eminent voltage collapse
5. Understanding the concepts of Interconnection Reliability Operating Limits versus System Operating Limits
6. DC tie operations and procedures during system emergencies
7. Thermal and dynamic limits
8. Unscheduled flow mitigation – congestion management
9. Local and regional line loading procedures
10. Radial load and generation operations and procedures
11. Tie line operations
12. E-tagging and Interchange Scheduling
13. Generating unit operating characteristics and limits, especially regarding reactive capabilities and the relationship between real and reactive output

E. Technologies and Tools

1. Forecasting tools
2. Power system study tools
3. Interchange Distribution Calculator (IDC)

F. Market Operations as They Relate to Emergency Operations

1. Market rules
2. Locational Marginal Pricing (LMP)
3. Transmission rights
4. OASIS
5. Tariffs
6. Fuel management
7. Real-time, hour-ahead and day-ahead tools

A. Introduction

1. Title: **Reliability Coordination — Staffing**

2. Number: PER-004-2

3. Purpose:

Reliability Coordinators must have sufficient, competent staff to perform the Reliability Coordinator functions.

4. Applicability

4.1. Reliability Coordinators.

5. Proposed Effective Date:

- Requirements 2, 3, 4, and 5 retired when PER-005-1 becomes effective

B. Requirements

R1. Each Reliability Coordinator shall be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

R2. Reliability Coordinator operating personnel shall place particular attention on SOLs and IROLs and inter-tie facility limits. The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times.

C. Measures

None.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

Each Reliability Coordinator shall keep evidence of compliance for the previous two calendar years plus the current year.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

1.4. Additional Compliance Information

None.

The VSL SDT developed VSLs for this standard to replace the Levels of Non-compliance

2. Levels of Non-Compliance for a Reliability Coordinator

2.1. Level 1: Not applicable.

2.2. Level 2: Not applicable.

2.3. Level 3: Not applicable.

2.4. Level 4:

E. Regional Differences

1. None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised

A. Introduction

1. **Title:** **Reliability Coordination — Staffing**

2. **Number:** PER-004-~~1~~2

3. **Purpose:**

   Reliability Coordinators must have sufficient, competent staff to perform the Reliability Coordinator functions.

4. **Applicability**

   4.1. Reliability Coordinators.

5. **Proposed Effective Date:** ~~January 1, 2007~~

   - Requirements 2, 3, 4, and 5 retired when PER-005-1 becomes effective

B. Requirements

R1. Each Reliability Coordinator shall be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

~~**R2.**All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.~~

~~**R3.**Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.~~

~~**R4.**Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.~~

~~**R5.**~~**R2.** Reliability Coordinator operating personnel shall place particular attention on SOLs and IROLs and inter-tie facility limits. The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times.

C. Measures

None

~~**M1.**The Reliability Coordinator shall have and provide upon request training records that confirm that each of its operating personnel has completed a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel, as specified in Requirement 2.~~

~~**M2.**Each Reliability Coordinator shall have and provide upon request evidence that could include but is not limited to, a documented training program and individual training records for each of its operating personnel or other equivalent evidence that will be used to confirm that it meets Requirements 3 and 4.~~

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

Each Reliability Coordinator shall keep evidence of compliance for the previous two calendar years plus the current year.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

1.4. Additional Compliance Information

None.

The VSL SDT developed VSLs for this standard to replace the Levels of Non-compliance

2. Levels of Non-Compliance for a Reliability Coordinator

~~To be developed~~

2.1. Level 1: Not applicable.

2.2. Level 2: Not applicable.

2.3. Level 3: Not applicable.

2.4. Level 4: ~~There shall be a separate Level 4 non-compliance, for every one of the following requirements that is in violation:~~

~~**2.4.1**One or more of its shift operating personnel did not complete a minimum of five days per year of training and drills using realistic simulations of system emergencies in the past year. (R2)~~

~~**2.4.2**No evidence operating personnel have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas. (R3)~~

~~**2.4.3**No evidence operating personnel have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area. (R4)~~

E. Regional Differences

1. None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed "Proposed" from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised

The SPT SDT recommends that this entire standard be retired when PER-005 becomes effective.

A. Introduction

1. **Title:** **Operating Personnel Training**

2. **Number:** PER-002-0

3. **Purpose:** Each Transmission Operator and Balancing Authority must provide their personnel with a coordinated training program that will ensure reliable system operation.

4. **Applicability**

   4.1. Balancing Authority.

   4.2. Transmission Operator.

5. **Effective Date:** April 1, 2005

B. Requirements

R1. Each Transmission Operator and Balancing Authority shall be staffed with adequately trained operating personnel.

R2. Each Transmission Operator and Balancing Authority shall have a training program for all operating personnel that are in:

R2.1. Positions that have the primary responsibility, either directly or through communications with others, for the real-time operation of the interconnected Bulk Electric System.

R2.2. Positions directly responsible for complying with NERC standards.

R3. For personnel identified in Requirement R2, the Transmission Operator and Balancing Authority shall provide a training program meeting the following criteria:

R3.1. A set of training program objectives must be defined, based on NERC and Regional Reliability Organization standards, entity operating procedures, and applicable regulatory requirements. These objectives shall reference the knowledge and competencies needed to apply those standards, procedures, and requirements to normal, emergency, and restoration conditions for the Transmission Operator and Balancing Authority operating positions.

R3.2. The training program must include a plan for the initial and continuing training of Transmission Operator and Balancing Authority operating personnel. That plan shall address knowledge and competencies required for reliable system operations.

R3.3. The training program must include training time for all Transmission Operator and Balancing Authority operating personnel to ensure their operating proficiency.

R3.4. Training staff must be identified, and the staff must be competent in both knowledge of system operations and instructional capabilities.

R4. For personnel identified in Requirement R2, each Transmission Operator and Balancing Authority shall provide its operating personnel at least five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.

C. Measures

M1. The Transmission Operator and Balancing Authority operating personnel training program shall be reviewed to ensure that it is designed to promote reliable system operations.

D. Compliance

1. Compliance Monitoring Process

Periodic Review: The Regional Reliability Organization will conduct an on-site review of the Transmission Operator and Balancing Authority operating personnel training program every three years. The operating personnel training records will be reviewed and assessed compared to the program curriculum.

1.1. Compliance Monitoring Responsibility

Self-certification: The Transmission Operator and Balancing Authority will annually provide a self-certification based on Requirements R1 through R4.

1.2. Compliance Monitoring Period and Reset Timeframe

One calendar year.

1.3. Data Retention

Three years.

1.4. Additional Compliance Information

Not specified.

2. Levels of Non-Compliance

2.1. Level 1: N/A.

2.2. Level 2: The Transmission Operator or Balancing Authority operating personnel training program does not address all elements of Requirement R3.

2.3. Level 3: The Transmission Operator or Balancing Authority operating personnel training program does not address Requirement R4.

2.4. Level 4: A Transmission Operator or Balancing Authority has not provided a training program for its operating personnel.

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Proposed Effective Date	Errata

Implementation Plan for PER-005-1 – System Personnel Training

Prerequisite Approvals

There are no other reliability standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this standard can be implemented.

Modified Standards

PER-002-0 should be retired when PER-005-0 becomes effective.

PER-004-1 Requirements 2, 3 and 4 should be retired when PER-005-1 becomes effective.

The following tables summarize the mapping of the PER-004-1 requirements to PER-005-1 and other standard requirements:

PER-004-1 Requirement	PER-005-1 Requirements
R2. All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.	R3. At least every 12 months, each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each System Operator with at least 32 hours months of emergency operations training applicable to its organization that reflect emergency operations topics (which includes system restoration) using training, drills, exercises and hands on training using simulators. PER-005-1 R3 includes PER-004-1 R2 and therefore PER-004-1 R2 should be retired. (Note that the five days per year of training has been clarified to mean 32 hours of training.)
R3. Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall complete a systematic approach to training to establish a new or modify an existing training program(s) for the Bulk Electric System (BES) company-specific reliability-related tasks performed by its System Operators. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each System Operator's capability to perform each task identified in R1.1 at least one time. The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R2) duplicate PER-004-1 R3 and therefore PER-004-1 R3 should be retired.
R4. Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall complete a systematic approach to training to establish a new or modify an existing training program(s) for the Bulk Electric System (BES) company-specific reliability-related tasks performed by its System Operators. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each System Operator's capability to perform each task identified in R1.1 at least

PER-004-1 Requirement	PER-005-1 Requirements
	one time. The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R3) duplicate PER-004-1 R4 and therefore PER-004-1 R4 should be removed.

Red-line versions of PER-002-0 and PER-004-1 are posted with this Implementation Plan.

Compliance with Standards

Once this standard becomes effective, the responsible entities identified in the applicability section of the standard must comply with the requirements. These include:

- Reliability Coordinators
- Balancing Authorities
- Transmission Operators

Proposed Effective Date

Compliance with PER-005 shall be implemented over a three-year period, as follows:

- Requirement 1, Requirement 2, and Requirement 3 shall become effective 36 months after the first day of the first quarter following regulatory approval or, in those jurisdictions where regulatory approval is not required, the Reliability Standard otherwise becomes effective 36 months after the first day of the first quarter after Board of Trustee adoption.

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PER-005 System Operator Training
Reference Document

Reference #1: Determining Task Performance Requirements

The purpose of this reference is to provide guidance in writing a performance standard that describes the desired outcome of a task. A standard for acceptable performance should be in either measurable or observable terms.

Clear standards of performance are necessary for an individual to know when he or she has completed the task and to ensure agreement between employees and their supervisors on the objective of a task. Performance standards answer the following questions:

- How timely must the task be performed?
  Or
- How accurately must the task be performed?
  Or
- With what quality must it be performed?
  Or
- What response or outcome must be achieved?

When a performance standard is quantifiable, successful performance is more easily demonstrated. For example, in the following task statement, the criteria for successful performance is to return system loading to within normal operating limits, which is a number that can be easily verified.

> Given a System Operating Limit violation on the transmission system, implement the correct procedure for the circumstances to mitigate loading to within normal operating limits.

Even when the outcome of a task cannot be measured as a number, it may still be observable. The next example contains performance criteria that is qualitative in nature, that is, it can be verified as either correct or not, but does not involve a numerical result.

> Given a tag submitted for scheduling, ensure that all transmission rights are assigned to the tag per the company Tariff and in compliance with NERC and NAESB standards.

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Reference #2: Systematic Approach to Training References:

The following list of hyperlinks identifies references for the NERC Standard PER-005 to assist with the application of a systematic approach to training:

(1) DOE-HDBK-1078-94, A Systematic Approach to Training
http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf

(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910
http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html

(3) ADDIE – 1975, Florida State University
http://www.nwlink.com/~donclark/history_isd/addie.html

(4) DOE Standard - Table-Top Needs Analysis
DOE-HDBK-1103-96
http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf

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This is a copy of the questions found on the electronic comment form used to collect feedback on Draft 3 of PER-005-1 — System Personnel Training. This list of questions has been provided to make it easier for groups to draft their comments before submitting them electronically and should not be used to submit comments.

When you are ready to submit your comments, please transfer the comments to the electronic form and submit by April 9, 2008. If you experience problems using the electronic comment form, please contact Barbara Bogenrief at 609-452-8060.

1. FERC Order 693 directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The SPT SDT revised R1 to identify the essential components of a systematic approach to training. Do you agree that this requirement now clearly describes the minimal components that must be included in a systematic approach to training? If not, please explain in the comment area.

   ☐ Yes
   ☐ No
   Comments:

2. The SPT SDT revised R3 for emergency operations training. The drafting team believes that each company's list of reliability-related tasks (from R1.1) will include tasks related to emergency operations such that the task list developed to meet R1 can be used to identify the training needed to meet R3. If you disagree, please explain in the comment area.

   ☐ Yes
   ☐ No
   Comments:

3. Do you agree with the revised Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes
   ☐ No
   Comments:

4. Do you agree with the revised Violation Severity Levels for each of requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes
   ☐ No
   Comments:

5. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

   ☐ Yes
   ☐ No
   Comments:

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Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

The System Personnel Training Standard Drafting Team (SPT SDT) thanks all commenters who submitted comments on the third draft of the standard. This standard was posted for a 45-day public comment period from February 25, 2007 through April 9, 2007.

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Gerry Adamski, at 609-452-8060 or at gerry.adamski@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Reliability Standards Development Procedures: http://www.nerc.com/standards/newstandardsprocess.html.

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

<table>
<tr><th>Individual or group.</th><th>Name</th><th>Organization</th><th>Registered Ballot body segment (check all industry segments in which your company is registered)</th><th></th></tr>
<tr><td>1. Individual</td><td>Linda Campbell</td><td>FRCC</td><td>10 - Regional Reliability Organization/Regional Entity</td><td></td></tr>
<tr><td>2. Individual</td><td>Frank Cumpton</td><td>California ISO</td><td>2 - RTOs and ISOs</td><td></td></tr>
<tr><td>3. Individual</td><td>George Brady</td><td>Ohio Valley Electric Corporation</td><td>1 - Transmission Owners</td><td></td></tr>
<tr><td>4. Individual</td><td>Art Buanno</td><td>FirstEnergy</td><td>1 - Transmission Owners, 3 - Load-serving Entities, 5 - Electric Generators</td><td></td></tr>
<tr><td>5. Individual</td><td>Denise Koehn for Brian Tuck and other SMEs</td><td>Bonneville Power Administration</td><td>5 - Electric Generators, 6 - Electricity Brokers, Aggregators , 3 - Load-serving Entities, 1 - Transmission Owners</td><td></td></tr>
<tr><td>6. Individual</td><td>Stephen Joseph</td><td>Tampa Electric Company</td><td>1 - Transmission Owners, 5 - Electric Generators, 3 - Load-serving Entities</td><td></td></tr>
<tr><td>7. Group</td><td>Robert Rhodes</td><td>Operating Reliability Working Group (ORWG)</td><td>1 - Transmission Owners, 2 - RTOs and ISOs, 3 - Load-serving Entities, 5 - Electric Generators</td><td>
<table>
<tr><th></th><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th></tr>
<tr><td>1.</td><td>Brian Berkstresser</td><td>Empire District Electric</td><td>SPP</td><td>1, 3, 5</td></tr>
<tr><td>2.</td><td>Mike Gammon</td><td>Kansas City Power & LIght</td><td>SPP</td><td>1, 3, 5</td></tr>
<tr><td>3.</td><td>Allen Klassen</td><td>Westar Energy</td><td>SPP</td><td>1, 3, 5</td></tr>
<tr><td>4.</td><td>Kyle McMenamin</td><td>Southwestern Public Service</td><td>SPP</td><td>1, 3, 5</td></tr>
<tr><td>5.</td><td>Fred Meyer</td><td>Empire District Electric</td><td>SPP</td><td>1, 3, 5</td></tr>
<tr><td>6.</td><td>Mike Murray</td><td>City Power & Light (Independence, MO)</td><td>SPP</td><td>1, 3, 5</td></tr>
<tr><td>7.</td><td>Robert Rhodes</td><td>Southwest Power Pool</td><td>SPP</td><td>2</td></tr>
<tr><td>8.</td><td>Jason Smith</td><td>Southwest Power Pool</td><td>SPP</td><td>2</td></tr>
</table>
</td></tr>
<tr><td>8. Individual</td><td>Steve Rainwater</td><td>LCRA</td><td>1 - Transmission Owners</td><td></td></tr>
<tr><td>9. Individual</td><td>Jim Fee</td><td>Sacramento Municipal Utility District</td><td>1 - Transmission Owners</td><td></td></tr>
<tr><td>10. Individual</td><td>Rick White</td><td>Northeast Utilities</td><td>1 - Transmission Owners</td><td></td></tr>
<tr><td>11. Individual</td><td>Steve Hall</td><td>CAISO</td><td>2 - RTOs and ISOs</td><td></td></tr>
<tr><td>12. Group</td><td>Guy Zito</td><td>NPCC Regional Standards Committee</td><td>10 - Regional Reliability Organization/Regional Entity</td><td>
<table>
<tr><th></th><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th></tr>
<tr><td>1.</td><td>Lee Pedowicz</td><td>NPCC</td><td>NPCC</td><td>10</td></tr>
<tr><td>2.</td><td>Ralph Rufrano</td><td>New York Power Authority</td><td>NPCC</td><td>1</td></tr>
<tr><td>3.</td><td>David Kiguel</td><td>Hydro One</td><td>NPCC</td><td>1</td></tr>
<tr><td>4.</td><td>Donald Nelson</td><td>Massachusetts Department of Public Utilities</td><td>NPCC</td><td>9</td></tr>
<tr><td>5.</td><td>Ronald Hart</td><td>Dominion Resources, Inc.</td><td>NPCC</td><td>3</td></tr>
<tr><td>6.</td><td>Ben Li</td><td>Independent Electricity System Operator</td><td>NPCC</td><td>2</td></tr>
<tr><td>7.</td><td>Brian Evans-Mongeon</td><td>Utility Services, LLC</td><td>NPCC</td><td>8</td></tr>
</table>
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Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Individual or group.	Name	Organization	Registered Ballot body segment (check all industry segments in which your company is registered)	
				8. Murale Gopinathan — Northeast Utilities — NPCC — 1 9. Michael Ranalli — National Grid — NPCC — 1 10. Biju Gopi — Independent Electricity System Operator — NPCC — 2 11. William DeVries — New York Independent System Operator — NPCC — 2 12. Kathleen Goodman — ISO New England — NPCC — 2 13. Edwin Thompson — Consolidated Edison Company of New York, Inc. — NPCC — 1 14. Sylvain Clermont — Hydro-One TransEnergie Networks — NPCC — 1 15. Roger Champagne — Hydro-Quebec TransEnergie — NPCC — 1 16. Alan Adamson — NY State Reliability Council — NPCC — 10
13. Individual	Kris Manchur	Manitoba Hydro	1 - Transmission Owners, 6 - Electricity Brokers, Aggregators , 5 - Electric Generators, 3 - Load-serving Entities	
14. Group	Margaret R. Stambach	SERC System Operator Subcommittee (SOS) of the SERC Operating Committee	10 - Regional Reliability Organization/Regional Entity, 4 - Transmission-dependent Utilities, 5 - Electric Generators, 3 - Load-serving Entities, 2 - RTOs and ISOs, 1 - Transmission Owners	
15. Individual	Christopher R. Schneider	MidAmerican Energy Company	3 - Load-serving Entities, 5 - Electric Generators, 1 - Transmission Owners	
16. Individual	AJ Moore	Grant County PUD	1 - Transmission Owners, 5 - Electric Generators, 9 - Federal, State, Provincial Regulatory, or other Government Entities, 3 - Load-serving Entities	
17. Individual	Russell A. Noble	Cowlitz County PUD No. 1	3 - Load-serving Entities	
18. Individual	Mike Scott	Arizona Public Service Company	1 - Transmission Owners	
19. Group	Daniel Herring	The Detroit Edison Company	3 - Load-serving Entities, 5 - Electric Generators, 4 - Transmission-dependent Utilities	**Additional Member** — **Additional Organization** — **Region** — **Segment Selection** 1. Mike Saksa — DECO — RFC — 3, 4 2. Don Boyer — DECO — RFC — 5 3. Jeff DePriest — DECO — RFC — 5
20. Group	Brent Ingebrigtson	E.ON U.S.	5 - Electric Generators, 6 - Electricity Brokers, Aggregators , 3 - Load-serving Entities, 1 - Transmission Owners	
21. Group	Jim S. Griffith	SERC OC Standards Review Group		**Additional Member** — **Additional Organization** — **Region** — **Segment Selection** 1. Gene Delk — SCE&G — SERC — 1, 3, 5

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Individual or group.	Name	Organization	Registered Ballot body segment (check all industry segments in which your company is registered)	
		(Project 2006-01)		2. Danny Dees — MEAG — SERC — 1, 3, 5, 9 3. Dan Jewell — LA Generating, LLC — SERC — 1, 3, 5, 9 4. John Neagle — AECI — SERC — 1, 3, 5, 9 5. Joel Wise, Sue Mangum Goins, Kathy Davis, Dean Robinson, Rick Woodlee, Mike Fielden — TVA — SERC — 1, 3, 5, 9 6. Barry Warner, Steve Stiles, Arthur Simpson — EKPC — SERC — 1, 3, 5, 9 7. Rocky Williamson — Georgia Power — SERC — 1, 3, 5 8. Randy Wilkerson — Progress Energy Carolinas — SERC — 1, 3, 5 9. Robert Thomasson — BREC — SERC — 1, 3, 5, 9 10. Jim Case, Donnie Harrell, Wayne Mitchell, Mark Brown — Entergy — SERC — 1, 3 11. Rene' Free, Kristi Boland — SCPSA — SERC — 1, 3, 5, 9 12. DeWayne Roberts — Owensboro Municipal Utilities — SERC — 1, 3, 5, 9 13. James Ford — Southern Company — SERC — 1, 3, 5 14. Wayne Pourciau — GA Systems Operations Corp. — SERC — 1, 3, 5, 9 15. John Rembold — SIPC — SERC — 1, 3, 5, 9 16. Carter Edge, Margaret Stambach, John Troha — SERC — SERC — NA
22. Individual	Alessia Dawes	Hydro One Networks - Reliability Standards Group	1 - Transmission Owners, 3 - Load-serving Entities	
23. Individual	Jason Shaver	American Transmission Company	1 - Transmission Owners	
24. Individual	Mark L Bennett	Gainesville Regional Utilities	5 - Electric Generators	
25. Individual	Michael Schiavone	Niagara Mohawk (DBA National Grid)	3 - Load-serving Entities	
26. Group	Nancy Bellows	WECC Reliability Coordination Comments Work Group (RCCWG)	2 - RTOs and ISOs	Additional Member — Additional Organization — Region — Segment Selection 1. Terry Baker — PRPA — WECC — 2 2. Paul Bleuss — CMRC — WECC — 2 3. Gregory Campbell — RDRC — WECC — 2 4. Mike Gentry — SRP — WECC — 2

Individual or group.	Name	Organization	Registered Ballot body segment (check all industry segments in which your company is registered)	
				5. Bob Johnson Xcel WECC 2 6. Don Pape WECC WECC 2 7. Linda Perez WECC WECC 2 8. Dick Schwarz PNSC WECC 2 9. Greg Tillitson CMRC WECC 2
27. Individual	Todd Lietz	PSEI	4 - Transmission-dependent Utilities, 3 - Load-serving Entities, 5 - Electric Generators, 1 - Transmission Owners	
28. Group	Ron Maki / John Kerr	Southwest Power Pool - Operations Training Working Group	2 - RTOs and ISOs, 3 - Load-serving Entities, 5 - Electric Generators, 4 - Transmission-dependent Utilities, 1 - Transmission Owners, 7 - Large Electricity End Users, 8 - Small End Users, 9 - Federal, State, Provincial Regulatory, or other Government Entities	
29. Individual	CJ Ingersoll	CECD	3 - Load-serving Entities	
30. Group	Patrick Brown	PJM Interconnection, LLC	2 - RTOs and ISOs	
31. Individual	Mike Pfeister	Salt River Project	3 - Load-serving Entities, 5 - Electric Generators, 1 - Transmission Owners	
32. Individual	Lauri Jones	Pacific Gas and Electric Company	1 - Transmission Owners	
33. Individual	Alice Druffel	Xcel Energy	1 - Transmission Owners, 3 - Load-serving Entities, 6 - Electricity Brokers, Aggregators , 5 - Electric Generators	
34. Group	Joseph DePoorter	MRO NERC Standards Review Subcommittee	3 - Load-serving Entities, 4 - Transmission-dependent Utilities, 5 - Electric Generators, 6 - Electricity Brokers, Aggregators	
35. Individual	William J. Smith	Allegheny Power	1 - Transmission Owners	
36. Group	Phil Riley	Public Service Commission of South Carolina	9 - Federal, State, Provincial Regulatory, or other Government Entities	
37. Group	Lauri Jones	WECC Operations Training Subcommittee	1 - Transmission Owners	
38. Individual	Kathleen Goodman	ISO New England Inc.	2 - RTOs and ISOs	
39. Group	Will Franklin	Entergy Services, Inc. System	6 - Electricity Brokers, Aggregators	

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Individual or group.	Name	Organization	Registered Ballot body segment (check all industry segments in which your company is registered)	
		Planning & Operations (Generation & Marketing)		
40. Individual	Thad Ness	AEP	3 - Load-serving Entities, 1 - Transmission Owners, 5 - Electric Generators, 6 - Electricity Brokers, Aggregators	
41. Individual	H. Vann Weldon	ERCOT Inc.	2 - RTOs and ISOs	
42. Individual	Howard Rulf	We Energies	3 - Load-serving Entities, 5 - Electric Generators, 4 - Transmission-dependent Utilities	
43. Group	Terry L. Blackwell	Santee Cooper	1 - Transmission Owners	
44. Individual	Thomas Fung	BCTC	2 - RTOs and ISOs	
45. Group	Richard Kafka	Pepco Holdings, Inc. - Affiliates	1 - Transmission Owners	**Additional Member** / **Additional Organization** / **Region** / **Segment Selection** 1. Valerie Hildebrand / PEPCO / RFC / 1 2. Bryan Clark / Delmarva Power & Light / RFC / 1
46. Group	Ed Carmen	Baltimore Gas & Electric	1 - Transmission Owners	
47. Individual	Gregory Campoli	New York Independent System Operator	2 - RTOs and ISOs	
48. Group	Sam Ciccone	FirstEnergy	1 - Transmission Owners, 6 - Electricity Brokers, Aggregators , 5 - Electric Generators, 3 - Load-serving Entities	**Additional Member** / **Additional Organization** / **Region** / **Segment Selection** 1. Jim Eckels / FirstEnergy / RFC / 1,3,5,6 2. John Reed / FirstEnergy / RFC / 1,3,5,6 3. Larry Hartley / FirstEnergy / RFC / 1,3,5,6 4. Hugh Bulloci / FirstEnergy / RFC / 1,3,5,6 5. Eugene Blick / FirstEnergy / RFC / 1,3,5,6 6. Dave Folk / FirstEnergy / RFC / 1,3,5,6 7. Doug Hohlbaugh / FirstEnergy / RFC / 1,3,5,6
49. Individual	Greg Rowland	Duke Energy Corporation	6 - Electricity Brokers, Aggregators , 3 - Load-serving Entities, 5 - Electric Generators, 1 - Transmission Owners	
50. Individual	Ron Falsetti	Ontario IESO	2 - RTOs and ISOs	
51. Group	Jason Marshall	Midwest ISO Stakeholder Collaborators	2 - RTOs and ISOs	**Additional Member** / **Additional Organization** / **Region** / **Segment Selection** 1. Jeanne Kurzynowski / Consumers Energy / RFC / 3,4,5 2. Joe Knight / GRE / MRO / 1

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

1. FERC Order 693 directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The SPT SDT revised R1 to identify the essential components of a systematic approach to training. Do you agree that this requirement now clearly describes the minimal components that must be included in a systematic approach to training? If not, please explain in the comment area.

Organization	Question 1:	Question 1 Comments:
FRCC	No	Although FERC required the SAT methodology in Order 693, it was not defined. The previous version of the standard did include, (analysis, design, development, implementation and evaluation) components of what at SAT should include. These have been removed and now it seems that "systematic approach" is an ambiguous term. The requirement states that the RC, BA and TOP shall "use" a systematic approach. Are the requirements 1.1, 1.1.1, 1.2, 1.3 and 1.4 the components of such an approach? If so, why not delete the term and just have the requirements which cover each of the components?
California ISO	No	Stating that the FERC mandated SAT methodology must be used is sufficient. The SAT methodology already includes the components listed in the sub-requirements. We suggest eliminating all the sub-requirements to R1.With R1 modified to eliminate the sub-requirements, we recommend re-writing R2 as shown below.R2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each of its System Operator's capabilities to perform reliability-related tasks at least one time. [Risk Factor: High] [Time Horizon: Long-term Planning]We suggest that R2.1 be modified to allow extra time for employees who were absent from work and were unable to be trained within the six month time frame.R2.1. Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks. The six-month time frame is applicable only to those employees who were not absent from work and who were able to attend the formal training sessions. An additional six months for evaluating System Operator's capabilities shall be granted for employees who were unable to attend formal training due to absence from work.
Ohio Valley Electric Corporation	No	R1.2 & R1.3 could be interpreted to exclude the use of contractors for designing and developing learning objectives and training materials. R1.2 & R1.3 should be revised so as not to imply that outside contractors could not be used. The evaluation of training stated in R1.4 is a good statement and good training practice. However, there has been no assessment or evaluation of the effectiveness existing training programs required by PER-002, R3 that has been in affect for over three years. Why create a standard to mandate a new training program when no assessment has been made of the effectiveness of existing training programs? The work to create a new training standard is not a judicious use of resources in order to strengthen the reliability of the bulk electric system. FERC, with its Order, is trying to direct the outcome of the stakeholder process without participating in the same process that the stakeholders must use. The standards development process loses its integrity if the outcome is directed or predetermined and stakeholder input is not considered.
firstenergy	Yes	
Bonneville Power Administration	Yes	
tampa electric company	No	The previous version of the standard did include, (analysis, design, development, implementation and evaluation) which are components of what at SAT should include. These have been removed and now it seems that "systematic approach" is an ambiguous term, unless creating the task list is what the SDT considers a systematic approach to training.
Operating Reliability Working Group (ORWG)	Yes	
LCRA	No	The requirement requires transmission operators to create a list of company specific reliability related tasks. What are they exactly? That's a very subjective term. Who decides? If the transmission operator training staff decides what will be critical, and thus what they will be audited on, then it behooves them to keep that list as short as possible. The fewer tasks on the list, the less one is responsible for. I do agree that the systematic approach is the best way to go, but not when you are attempting to tie it to a task list that is completely subjective. That makes no sense whatsoever.
Sacramento Municipal Utility District	Yes	
Northeast Utilities	Yes	R1 describes the SAT process (Analysis, Design, Develop, Implement, and Evaluate) well. What guidance determines "BES company-specific reliability-related tasks"?

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 1:	Question 1 Comments:
Response:		
CAISO	No	This is a general comment regarding PER-005. The following statement from R2 has a typo error. I believe the word "or" should have been "of". Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each or its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time.
NPCC Regional Standards Committee	No	NPCC participating members wish to thank the drafting team for accepting our comment related to the SAT from the last posting--"We continue to disagree that using a Systematic Approach to Training to develop a training program is a reliability requirement. Reliability standards need to address the "what", not the how, despite the FERC Order." The lower case acronym that now appears in the standard seems to have alleviated some of the concern with some of the NPCC RSC members. However we request the drafting team further clarify the standard to ensure that the requirement to use a "systematic approach to training" does not dictate a specific type of training program, such as the 5 principles in the SAT, as long as requirements in R1.1 to R1.4 are fully met. In fact, R1 should simply be stipulated as: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall establish a new or modify an existing training program(s) for the BES company-specific reliability-related tasks performed by its System Operators."
Manitoba Hydro	Yes	Manitoba Hydro agrees that a Systematic Approach to training be used in developing new training programs.
SERC System Operator Subcommittee (SOS) of the SERC Operating Committee	No	We agree that R1 does identify the essential components of a Systematic Approach to Training (SAT). However, we found the statement that SAT must be used "to establish a new or modify an existing training program(s)" to be ambiguous. Clearly, if a company creates a new course or undertakes a modification to an existing course, then SAT must be followed. But does this statement require that ALL existing training programs (whether modifications are planned or not) be adjusted to be consistent with SAT? R1 needs to be reworded to eliminate this ambiguity. Furthermore, the development of reliability-related system operator tasks is a crucial starting point for the SAT process. R1 requires that these tasks be company-specific and related to the Bulk Electric System (BES). However, BES still has not been adequately defined to a level that would provide direction to companies for developing their own reliability-related tasks.
MidAmerican Energy Company	Yes	
Grant County PUD	Yes	The revised Requirement R1 does identify a minimum subset of the components of the Systematic Approach to Training with out actually naming them. Analysis, Design, Development, Implementation and Evaluation. These elements are very well understood in other industries such as nuclear power and have been in use for many years. It's not clear why you would choose not to simply use the existing model and not try to reinvent the wheel? It's also notable that the previous version had reference to a "Generic Task List" which could prove very useful and informative for those who are struggling with the analysis phase of SAT. This reference to the GTL was struck out in the new redline of the standard. This is unfortunate because entities with little expertise in SAT will have to start from scratch with their job/task analysis instead of having a point of departure for design and development. This is not to encourage wholesale use of a generic task list but perhaps the availability of a generic task list and guidance to customize it for use on an entity specific basis would provide a smoother transition to the Systematic Approach.
Cowlitz County PUD No. 1	Yes	
Arizona Public Service Company	Yes	
The Detroit Edison Company	Yes	
E.ON U.S.	No	E.ON U.S. generally supports the intent of the PER-005 standard, but it does not believe that following the Systematic Approach to Training as defined in the DOE document is appropriate in all instances. The DOE reference document is geared for training programs that relate to nuclear power operators which require a virtually fail safe redundancy. While E.ON U.S. acknowledges that formal operator training is essential for the safe and reliable operation of the electricity system, it is concerned that any incremental reliability gains derived from implementing the SAT document may not be worth the substantial cost for companies and their customers. E.ON U.S. believes that utilities should have the ability to outline and tailor their training programs to reflect the unique characteristics of their systems and the unique circumstances that each operator is likely to confront in the operation of the system. Many parties already have developed and will continue to conduct extensive and highly effective training of their operations staff. Absent some demonstration of substantial incremental

Organization	Question 1:	Question 1 Comments:
		benefit, a standard requiring utilities to start from scratch with a formal SAT process will be unjustifiably burdensome, distracting, and require a complete reallocation of already limited resources, all to the potential detriment of continued safe and reliable operations. E.ON U.S., as well as many other parties, currently train their system operators through many processes. For E.ON U.S., all new hires are required to complete a structured training program that covers all areas of operations during normal and emergency system conditions. This training is in the form of structured classroom and/or NERC certified vendor training plus direct instruction from supervisory operators through the use of actual control room equipment and, where appropriate, simulators. No operator is allowed to independently work until the supervisory personnel has certified that training has been completed and the employee has satisfactorily demonstrated proficiency in all identified tasks through the successful completion of a rigorous testing program.. All existing operators that have been certified as being proficient at a journeyman level will receive annual refresher instruction and training, both through vendor and simulator training programs to, again, guarantee that operators have a mastery of all tasks required of them. E.ON U.S. believes, therefore, that its current training program, while not identical with the DOE SAT process, achieves the same goals and objectives of having well-trained and proficient system operators in place, and in maintaining a rigorous training regimen to keep those skills at the highest attainable levels. Such a program provides systematic, company specific training programs and processes that meet the requirements of PER-005. Companies should be able to demonstrate that their training programs are equal or superior to programs that are identified in the SAT process. Identification of critical tasks and training necessary to ensure that system operators possess the skills necessary to complete the task is utility specific. Employing a cookie cutter approach as identified by the SAT process seems to largely ignore utility differences. Existing training programs should not be overhauled by use of the SAT unless these programs prove to be deficient.
SERC OC Standards Review Group (Project 2006-01)	No	We agree that R1 does identify the essential components of a Systematic Approach to Training (SAT). However, we found the statement that SAT must be used "to establish a new or modify an existing training program(s)" to be ambiguous. Clearly, if a company creates a new course or undertakes a modification to an existing course, then SAT must be followed. But does this statement require that ALL existing training programs (whether modifications are planned or not) be adjusted to be consistent with SAT? R1 needs to be reworded to eliminate this ambiguity. Furthermore, the development of reliability-related system operator tasks is a crucial starting point for the SAT process. R1 requires that these tasks be company-specific and related to the Bulk Electric System (BES). However, BES still has not been adequately defined to a level that would provide direction to companies for developing their own reliability-related tasks. A major point of confusion is the discrepancy between BES (NERC terminology) and the FERC terminology (Bulk Power System? BPS) as described in the Energy Policy Act of 2005. BPS has a much broader and inclusive definition, which makes it extremely difficult for an entity to determine if its training program meets the R1 requirement. We suggest the inclusion of an Appendix in this standard that formally defines the SAT/ADDIE process. While R1.1? R1.4 does allude to the basic elements of the process; this may not be obvious to those without a background in training. The Appendix would clearly describe each step required by the systematic approach to training, and bring everyone who must comply with this standard to a basic level of understanding.
Hydro One Networks - Reliability Standards Group	No	(do not wish to specify Yes or NO for this question)R1.4 needs a time frame in which each entity must conduct an evaluation of their training program.
American Transmission Company	Yes	In general we agree with the approach described.
Gainesville Regional Utilities	No	FERC and NERC describing in detail How training is accomplished and documented seem to be taking things to an extreme that is not necessary.
Niagara Mohawk (DBA National Grid)	Yes	The lower case acronym that now appears in the standard seems to have alleviated some of our concerns. However we request the drafting team further clarify the standard to ensure that the requirement to use a "systematic approach to training" does not dictate a specific type of training program, such as the 5 principles in the SAT, as long as requirements in R1.1 to R1.4 are fully met. In fact, R1 should simply be stipulated as: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall establish a new or modify an existing training program(s) for the BES company-specific reliability-related tasks performed by its System Operators" since R1.1 thru 1.4 describe the training development "process".
WECC Reliability Coordination Comments	Yes	

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 1:	Question 1 Comments:
Work Group (RCCWG)		
PSEI	No	Since the new wording includes "BES company-specific reliability-related tasks" we have now bought into regional differences as each region is responsible to decide their definition of BES. They have done this in a FERC filing (Docket No. RM06-16-000). What if a company does not have any tasks that are BES related as defined by their region? Will an auditor accept that it does not apply and therefore the entity does not need a training program? Requiring an administrative burdensome process for all training does not help smaller companies. They lack staff. Perhaps the training standard should only apply to those companies that are CEH providers. System Operators are already required to obtain and maintain certification. Let companies decide the skill level of their operators without an administrative nightmare.
Southwest Power Pool - Operations Training Working Group	Yes	
CECD	Yes	
PJM Interconnection, LLC	No	R1 without the sub-requirements is sufficient to meet the FERC directive. The sub-requirements go outside the scope of the standard and merely describe some elements of the SAT methodology itself. The SAT methodology is a well established, widely used training standard in the industry which does not need to be described in detail in the NERC Standards.
Salt River Project	Yes	
Pacific Gas and Electric Company	Yes	
Xcel Energy	Yes	
MRO NERC Standards Review Subcommittee	No	A systematic approach to training is a clearly developed process used in many programs. Some entities may interpret this to refer to the DOE SAT methodology, which is incorrect. The MRO suggests wording to clarify R1: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall use asystematic approach to training as outlined in the sub-requirements below, to establish?" R1.1.1 states "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall update its list of BES company-specific reliability-related tasks" Replace 'update' with 'review and update as necessary'
Allegheny Power	Yes	
Public Service Commission of South Carolina	Yes	
WECC Operations Training Subcommittee	Yes	
ISO New England Inc.	Yes	
Entergy Services, Inc. System Planning & Operations (Generation & Marketing)	Yes	We agree that the description for the SAT methodology clearly describes the minimal components required. We do have concern with the use of the term "company specific". Does this infer that each company has a composite listing or can each function (business unit) within a company maintain their own listing?
AEP	Yes	
ERCOT Inc.	No	R1 without the sub-requirements is sufficient to meet the FERC directive. The sub-requirements of R1 are not only unnecessary; as written they are detrimental.
We Energies	Yes	
Santee Cooper	No	R1 states "? Shall use a systematic approach to training to establish a new or modify an existing training program(s)". Does this imply that all previous training is to be modified to fit SAT? A training module should only need to be modified to fit the SAT process if it is used again after this standard is approved. All past training that is not used after this standard is approved should not have to be modified. See below for recommended wording. We agree that R1 describes the minimal components that should be included in a training program. Recommend including as an attachment to the standard the System Operator Training Reference Document. We recommend removing

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 1:	Question 1 Comments:
		the words "BES company-specific" to avoid confusion. R1 would read simpler as "Each RC, BA, and TOP shall use a systematic approach to training to establish a new training program for reliability-related tasks performed by its System Operators. Existing programs that do not follow the SAT model should ensure future training conforms to the SAT process."
BCTC	No	The concept for Systematic Approach to Training is understood but it is not clear what the BES company-specific reliability-related tasks performed by System Operators would be. This would be too open to interpretation by an audit team.
Pepco Holdings, Inc. - Affiliates	No	Change the wording in R1 to emphasize the training program before establishing the method of development. For example --Each RC, BA and TOP shall establish a new or modify an existing training program using a systematic approach etc. The change in emphasis would make it easier to state VSLs as shown in 4 below.
Baltimore Gas & Electric	Yes	
New York Independent System Operator	Yes	
FirstEnergy	No	Although we agree that the minimum training needs of personnel are identified, we have the following concerns/suggestions: 1. The standard does not require minimum training needs for the trainer. Adding a subrequirement to assure the trainer is adequately trained will support the BES reliability through the assurance that training personnel will have the knowledge and skills they need and will add to the quality of the training delivered. Even though this is considered to be outside the scope of the SAR, adding a requirement to "train the trainer" will demonstrate the importance of flexibility in NERC's standard development process that does not always exist today. While we understand that SDT's should not be given complete freedom to significantly diverge from the SAR scope, there needs to be some flexibility for teams to adjust the scope based on industry feedback. In the end, all new or revised standard requirements are voted on regardless of the exact SAR scope. We believe the SDT teams should not be rigidly bound by the SAR scope, but rather have enough flexibility to adjust based on subsequent direction from FERC on other standards projects or valid input, agreed upon by the SDT, that is received from industry during the development of the standard although not explicitly stated in the original SAR scope. Our suggested change to "train the trainer" has precedence from direction received from FERC based on its Order 706 regarding the CIP standards. Please refer to paragraph 435 of Order 706.2. We feel that R1.4 may need to be expanded. Per R1.4, an evaluation of the training program is required; however, it does not specify what to do with the results of such evaluations. We suggest revising R1.4 and adding the following subrequirements: R1.4. The Reliability Coordinator, Balancing Authority, and Transmission Operator shall conduct an evaluation of the training program established in R1. R1.4.1. The Reliability Coordinator, Balancing Authority, and Transmission Operator shall annually review the evaluations of their delivered training to identify needed changes to their training program.R1.4.2. The Reliability Coordinator, Balancing Authority, and Transmission Operator shall implement the training program changes identified in R1.4.1 within 12 months of that review.
Duke Energy Corporation	No	We have significant concerns with the current draft of PER-005-1. While the concept of a systematic approach to training? Is valid, the implementation of the concept as envisioned in the current draft cannot be accomplished with the precision and clarity necessary for a mandatory reliability standard. A process-driven approach like the systematic approach to training is better handled outside of reliability standards. We need specific requirements that are clear and consistently enforceable in the standards. The critical first step of the ?systematic approach to training as stated in Requirement R1.1, is to create a list of Bulk Electric System (BES) company-specific reliability-related tasks performed by its System Operators. The previous draft of PER-005-1 listed literally hundreds of tasks. The development of a company-specific list is a subjective endeavor. It is highly likely that auditors would consistently disagree with the composition of any responsibility entity's list, and hence find them in violation of a medium risk factor requirement. Ambiguous requirements have no place in a mandatory reliability standard. A better approach would be to capture in this standard the continuing education requirements and categories by type of NERC certification. Operators should be required to pass the appropriate NERC certification examination, and maintain that certification with NERC-approved continuing education training hours. For example the current requirement is 200 hours over a three-year period for Reliability Coordinators. The initial letter from Mark Fidrych stating the company requirement for the five-days of emergency operations training, established in PER-002 R4 and further defined as 32 hours currently identified in R3 of PER-005-1 should be put into the standard and counted toward the system operator certification training requirements as a third category of hours along with Simulation and Standards to maintain certification. Why have a completely separate set of training requirements not part of the continuing education process? It makes for separate record keeping and confusion. With the consolidation of

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 1:	Question 1 Comments:
		the PER-002, 003 and 004 into PER-005, it makes further sense to consolidate the emergency hour's requirement into the credential maintenance program.
Ontario IESO	No	We would ask the SDT to clarify that the requirement to use a "systematic approach to training" does not dictate a specific type of training program, as long as requirements in R1.1 to R1.4 are fully met. As we have commented in the past, we believe standards should dictate what and not how. If this clarification is made, the IESO would support the standard. However, if the "systematic approach to training" indeed dictates the use of a specific type of training program, then we would request the SDT to demonstrate how it can be determined that a training program developed using other methods is not acceptable if the subrequirements R1.1 to R1.4 are fully met.
Midwest ISO Stakeholder Collaborators	Yes	In general, we agree that R1 describes the components that must be included in a systematic approach to training. However, we do believe the requirement could be improved further by adding the following clause after the word training in the second line of R1.as outlined below

2. The SPT SDT revised R3 to identify the training requirements and the various techniques/tools that can be utilized to conduct the training. In utilizing a systematic approach to training as described in R1, would you agree that the task list developed in R1.1 would be utilized to conduct the training required in R3? If not, please explain in the comment area.

Organization	Question 2:	Question 2 Comments:
FRCC	No	The statement "using training, drills, exercises, and hands on training using simulators" is vague. What is meant by training since the items that follow it are forms of training? Does the responsible entity have to prove that all of these forms of training were used for every class, or just over the entire 32 hours. It appears that the only particular term identified for emergency operations training that is a "must" is system restoration. Is that correct? And if so, do all of the forms of training identified apply specifically to system restoration? This requirement needs to be clarified.
California ISO	No	We've recommended that the sub-requirements for R1 be eliminated. We believe R3 should be modified to allow any combination of "training, drills, exercises, and hands on training using simulators" instead of mandating that all must be used.
Ohio Valley Electric Corporation	No	Emergency operations training should not be limited to the task list developed in R1. Many emergency operations topics are related to concepts and not tasks. R1 can be used to identify some emergency operations training topics but will not cover all the topics that could qualify as emergency operations training. There is insistence by FERC that the use of simulators be explicitly required and that the requirements be applicable to local control center personnel. FERC offers no justification as to why this is necessary but it is also not immune from its requirement to engage in reasoned decision-making and provide justification. The required use of simulators creates undue hardship for many smaller entities, especially those with limited staffing. The purchase, operation, and model maintenance of a simulator is not an inexpensive proposition. Additional staffing for this purpose will be required. Likewise, there will be a considerable expenditure for training resources, either internal or external. FERC however did state that smaller entities that have no impact on the BES should not be required to have simulators, but no definition of small entity has been offered. Suggest removing the "hands on training using simulators" wording from R3.PER-002 R4 currently defines emergency operations training clearly and is well understood and successfully implemented by the entities required to provide this training. PER-005 R3 should be revised to the existing wording found in PER-002 R4.
firstenergy	No	R1.1 did not exist in draft 3 of the standard.
Bonneville Power Administration	Yes	
tampa electric company	No	I feel should be reworded to state "using training, drills, exercises, and hands on training using simulations" instead of simulators as many smaller and larger companies do not have the staff or resources to support simulators. Also, R3 does not address a new hire that starts mid year or a trainee who is released late in the year. Do these individuals have the same 32hr requirement even though they do not have a year to complete it?
Operating Reliability Working Group (ORWG)	Yes	
LCRA	No	The emergency training requirement should be removed from this standard and moved to certification/CE program. Right now CE requirements are tracked on a 36 month rolling calendar while the annual emergency training requirement is tracked on a 12 month annual calendar. You are confusing people and making it much more difficult to keep track of it all.
Sacramento Municipal Utility District	Yes	
Northeast Utilities	Yes	No specific duration associated with system restoration training. Should there be a minimum number of hours per year for system restoration training?
CAISO	No	No comment
NPCC Regional Standards Committee	Yes	
Manitoba Hydro	Yes	Manitoba Hydro agrees that a company's list of reliability related task which include tasks related to emergency operations be used to identify training needs.

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 2:	Question 2 Comments:
SERC System Operator Subcommittee (SOS) of the SERC Operating Committee	No	As stated in the response to Question 1, we are uncomfortable with the R1 requirement to create reliability-related tasks for the operation of the Bulk Electric System. The information needed to effectively develop the subset of tasks related to emergency operations is insufficient.
MidAmerican Energy Company	Yes	
Grant County PUD	Yes	
Cowlitz County PUD No. 1	Yes	
Arizona Public Service Company	Yes	
The Detroit Edison Company	Yes	We believe the use of "simulators" is too restrictive and "simulations" should be used instead. Simulations can occur without the use of simulators.
E.ON U.S.	Yes	No comment
SERC OC Standards Review Group (Project 2006-01)	No	As stated in the response to Question 1, we are uncomfortable with the R1 requirement to create reliability-related tasks for the operation of the Bulk Electric System. The information needed to effectively develop the subset of tasks related to emergency operations is insufficient. Clarify what the twelve months - is it an annual basis or a rolling 12 month = a calendar year vs. a credential year. In addition, we feel that the phrase in R3: At least every 12 months...? Is open to different interpretations. Must each system operator be provided with 32 hours of emergency training within every calendar year or within every credential year?R3 further implies by the phrase applicable to its organization that only system-specific training can be used for the 32-hour annual emergency training requirement. This wording needs to be changed to make it clear that, while system-specific training is needed, generic training on emergency operations is also allowed in the 32 hours. We also suggest that, in R3, the phrase and hands on training using simulators be changed to and/or hands on training using simulators to clarify that use of a simulator is not required for all training, drills or exercises (for example, table-top drills are allowed as well).
Hydro One Networks - Reliability Standards Group	No	Do not assume each company's list of tasks will include emergency operations and system restoration. Perhaps include these items in brackets in R1.1, and/or in requirement 3 refer to the list tasks in R1. Join R1 and R3 in someway other than assuming an entity/company will.
American Transmission Company	Yes	TC agrees with the SDT that the task list required by R1 can be used to identify those emergency operation tasks which can be used to satisfy R3.
Gainesville Regional Utilities	No	Not necessary
Niagara Mohawk (DBA National Grid)	Yes	
WECC Reliability Coordination Comments Work Group (RCCWG)	Yes	
PSEI	No	The new wording says "applicable to its organization". This just eliminated a lot of vendor training as it is generic. Small companies that do not have training staff rely on vendors to meet the current requirement. They also do not have the time and staff to specifically link a vendor's course to specific tasks. Emergency training can be and is valuable without burdening companies by requiring all to be company specific.
Southwest Power Pool - Operations Training Working Group	Yes	We believe this is true, but there are certain tasks that may be required as emergency training which falls under the general list of emergency training as indicated by Mark Fiddich's letter of March 2nd, 2004 that is not expressed by Requirement 1 of company specific related tasks.
CECD	Yes	

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 2:	Question 2 Comments:
PJM Interconnection, LLC	No	No list is required, as we recommended the elimination of the sub-requirements in R1. In addition, the type of training mandated is too definitive. The standard should read, “using a combination of training, drills, exercises, or training simulators.” This allows the registered entity to structure a program based on their specific needs and resources.
Salt River Project	Yes	
Pacific Gas and Electric Company	Yes	
Xcel Energy	No	We recommend that the wording of R3 be slightly modified to clarify that entities may use any of the training methods listed, and not necessarily required to use ALL of them. Here is how we suggest it should read: R3. At least every 12 months each Reliability Coordinator, Balancing Authority, and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics (which includes system restoration)using any of the following methods: training, drills, exercises, and hands on training using simulators.
MRO NERC Standards Review Subcommittee	Yes	The MRO understands the SDT to be saying that the emergency operations tasks identified in R1.1 can be used in R3. If that is correct the MRO agrees. If this is not the intent of the SDT, please clarify.
Allegheny Power	Yes	
Public Service Commission of South Carolina	Yes	
WECC Operations Training Subcommittee	No	Training applicable to the organization should be removed, due to lack of clarity which may lead to multiple interpretations and multiple definitions of "applicable"
ISO New England Inc.	Yes	
Entergy Services, Inc. System Planning & Operations (Generation & Marketing)	Yes	We agree that the list of reliability related tasks previously identified by the entity can be used to identify the training to meet R3. We have a concern with the description of the training methods, especially that it includes the apparent requirement to use hands on training simulators. The way this is written it indicates that the use of simulators is required. If that is the intent then we disagree with the requirement. If it is not the intent then strike the use of example entirely or clarify that the training "may include methods such as." Additionally, must all of the 32 hours be comprised of drills, exercises and hands on training using simulators?
AEP	Yes	We believe this is true but it should not harbor the intent that all emergency training should only be in conjunction with reliability tasks. Some tasks relate to emergency training which are indirect subsets of the reliability tasks. All emergency training done for the 5 days of emergency training should be considered satisfactory training whether directly or indirectly related to a reliability task. The present guidelines for emergency training topics identified by the Personnel Sub-committee in Mark Fydrich’s letter of March 2, 2004 on recommended training topics should remain the guidelines for emergency training topics.
ERCOT Inc.	Yes	The 32 hour requirement should be removed. The 32 hour requirement was an interim fix to address the absence of a SAT process in many organizations, and for political expediency. With the implementation of SAT, arbitrary mandates are no longer needed. If the 32 hour requirement remains, then the equivalent of the Fidrych letter of 2004 needs to be provided.
We Energies	Yes	The company's task list will not identify all of the allowed emergency operations training topics.
Santee Cooper	No	R3 reads" using training, drills, exercises, and hands on training using simulators". Santee Cooper agrees with R3 if the "and" is changed to "or". As it is currently written it could be misconstrued to mean that simulators have to be used for all 32 hours. In addition, Santee Cooper is concerned that a company's interpretation of what is considered emergency operations training could be questioned by an auditor without some further clarification of topics that can be included in emergency operations training (Fidrych letter). We also ask the SDT to clarify "at least every 12 months". Is this on an annual basis as currently defined in PER002? It could be rewritten to read "On a per year basis each RC, BA, and TOP shall provide?”
BCTC	No	The Standard now states that at least 32 hours annually of emergency operations training applicable to its organization. The way this is written suggests that emergency operations training is now limited to only company specific issues and that would disqualify much of the Emergency Operations training done with other organizations or contractors / vendors. If this interpretation is correct this would be very limiting and it would be difficult to get 32 hours accomplished. We suggest the original wording in PER-004 is sufficient and just change 5

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 2:	Question 2 Comments:
		days to 32 hours. It is not clear when a 12 month interval starts and stops for each System Operator as written in the Standard. Is this meant to allow each System Operator to have a different 12 month window so the measure could be tied to a Certification yearly window?
Pepco Holdings, Inc. - Affiliates	Yes	Requirement 3 should specifically state that the tasks related to emergency operations should be taken from the list developed for Requirement 1 In addition R3 should be revised to say "using any of the following: training classes, drills, exercises or hands on training using simulations" rather than training, drills, exercises and hands on training using simulators. This allows for training classes which can still be a valuable type of emergency ops training and other types of simulation experiences as well.
Baltimore Gas & Electric	Yes	
New York Independent System Operator	Yes	
FirstEnergy	Yes	
Duke Energy Corporation	No	See response to question #1 above. Also on R3, the phrase "using training, drills, exercises and hands-on training using simulators" should be changed to "using training, drills, table-top exercises or hands-on training using simulators". This change recognizes that training may be accomplished using one or more of these methods, and that hands-on training using simulators is not required for all entities (FERC Order No. 693, paragraphs 1390 - 1393).
Ontario IESO	Yes	
Midwest ISO Stakeholder Collaborators	No	We agree that the company's list of reliability-related tasks from R1.1 will include tasks related to emergency operations which will certainly facilitate identifying the training required for R3. As R3 is currently written, however, R3 creates the potential for small registered entities to expend significantly more funds for emergency operations training than they will realize in actual value. This is directly due to the requirement to include hands on training using simulators. In Order 693, FERC even recognized that smaller registered entities that have little impact on the BES should not be required to have a simulator or simulator training. FERC stated that the requirement to have a simulator or simulator training should consider the entities role and size. If the word simulator was changed to simulations or the word or was used instead of and in the list, the requirement would satisfy the consideration FERC gave these small entities in Order 693.

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

3. Do you agree with the revised Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

Organization	Question 3:	Question 3 Comments:
FRCC	Yes	However, It appears that the measure after M1.3 that is identified by M1. should really be M1.4 And, if the requirements change based on industry comments the measurements will need to be reevaluated and modified.
California ISO	No	We recommend the following:M1: Delete all M1 sub-measures, since we believe all R1 sub-requirements should be eliminated.M2: Delete references to R1.1
Ohio Valley Electric Corporation	No	The emphasis on documentation in this standard does not seem conducive to improved reliability, as a previous commenter from Draft 1 of this standard observed. The measures may provide an incentive to create documents, but are there mechanisms in the compliance process to distinguish between an entity that is providing the appropriate training and documenting it versus an entity that is merely creating documents? Similarly, an entity may be taking all of the right steps, providing the necessary training, but lacks having all of the mandated documentation (perhaps because of a lack of resources to maintain the documentation). Between the paper-creating entity and the proper training entity, which is in compliance and more importantly which is more reliable? Some may comment that without documentation there is no way to measure compliance. While compliance auditors will certainly look at documentation they make no attempt to compare the contents of the documentation with actual practices. If the documentation contains the right words, the entity is deemed to be in compliance, regardless of whether the words in the documents were put into practice. Thus, if compliance can be verified by observing the actual practices, then why is the documentation even needed?
firstenergy	Yes	
Bonneville Power Administration	Yes	
tampa electric company	Yes	
Operating Reliability Working Group (ORWG)	Yes	
LCRA	No	If I do not agree with the task list in the first place, it only follows that I would not agree with the measures. The measures themselves create an administrative nightmare for smaller utilities with respect to record keeping. There seems to be a disconnect on NERC's part as to how much the "one man shops" can handle. Not every utility in NERC has a large, complex training staff. In fact, many have one trainer, or even none. What is proposed by this standard will make training unmanageable.
Sacramento Municipal Utility District	Yes	
Northeast Utilities	Yes	
CAISO	No	No comment
NPCC Regional Standards Committee	Yes	
Manitoba Hydro	Yes	Manitoba Hydro agrees with the measures.
SERC System Operator Subcommittee (SOS) of the SERC Operating Committee	No	Section C of this standard indicates that responsible entities will be measured on specific items of evidence that demonstrate use of the SAT. However, many of these items are not explicitly stated in the standard requirements themselves. For instance, Measure M1.4 lists evidence such as instructor observations and learning assessments that were not previously identified in R1.4. In addition, some items of evidence for measuring entity performance are not part of the SAT process at all - for example, audit results and supervisor feedback. The requirements section of this standard needs to be reworded to better define what specific items of evidence are required.
MidAmerican Energy Company	No	Some training materials will be the property of third party providers of learning activities. Not all training materials will be developed by entity that developed the task list as suggested in M1.2. M1.2 should modified to "...have available for inspection its learning objectives and any training material self-supplied as specified in R2.2Based on what I have heard, the records kept in the NERC data base can not be accessed by anyone other than the system operator. M1.3 should be modified to read, "... showing the names of the people trained, the title of the training received and dates received to show that its operators received the training specified in R1.3 (2.3)
Grant County PUD	No	I note that there is a new requirement R2 which appeared suddenly with this version. You don't seem to be taking comments directly on

Organization	Question 3:	Question 3 Comments:
		this new addition though. Is this in accordance with the ANSI process for standards development? The proposed new R2 and its associated measure require a new verification of operator capability to perform the tasks identified in R1 at least one time. This verification is very different from the previous requirement to perform a training needs analysis based on performance mis-matches. What is the time period allowed to do the initial verification. Since the proposed effective date is 36 months after date of approval, should one assume that entities must be in compliance at that time with the requirement to do the initial one time verification? Please explain the point of doing this verification of capabilities only once? This seems to miss the boat on the benefit of refresher training. The only requirement will be to train when a new task is identified or an existing one is modified. Thus, an entity would be absolved from providing any refresher for operators on tasks that have not changed but which may be very difficult, highly important to be done correctly and performed only infrequently? This doesn't seem to meet the needs of system operators who are an essential element in maintaining bulk electric system reliability. Does this one time verification remove the 3 year certificate renewal cycle? If not, how does the one time verification fit into the overall systematic approach to training? What's the difference between the one time verification and initial certification? If you still have to renew your certificate every 3 years, doing this verification (at least one time) makes no sense because a systematic approach to training would revisit training on tasks based on the results of the Difficulty, Importance, and Frequency (DIF) analysis.
Cowlitz County PUD No. 1	Yes	
Arizona Public Service Company	Yes	M2 is unclear to me. The way I read it, within 36 months of the standard's approval, each operator must be evaluated on each assigned task, even if they are experienced incumbents. This may be done in one of three "methods": Training records, Supervisor check sheets, or Learning assessments. These "methods" are open to interpretation. To me, they mean the following: Training records = training on the task is provided and evaluated and the attendance sheet and grade is archived Supervisor checklist = floor supervisor sees operator perform task satisfactorily and marks it complete on a tracking sheet. Learning assessment = an operator successfully answers questions about a given task. Somebody may interpret those methods entirely differently. We need to understand the expectations, or the audit will be needlessly painful.
The Detroit Edison Company	No	We believe M1.2 should read: Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and a representative sample of training materials with all training materials available at the business location, with the date of the last revision, as specified in R1.2.
E.ON U.S.	Yes	
SERC OC Standards Review Group (Project 2006-01)	No	Section C of this standard indicates that responsible entities will be measured on specific items of evidence that demonstrate use of the SAT. However, many of these items are not explicitly stated in the standard requirements themselves. For instance, Measure M1.4 lists evidence such as instructor observations and learning assessments that were not previously identified in R1.4. In addition, some items of evidence for measuring entity performance are not part of the SAT process at all - for example, audit results and supervisor feedback. The requirements section of this standard needs to be reworded to better define what specific items of evidence are required.
Hydro One Networks - Reliability Standards Group	Yes	
American Transmission Company	Yes	
Gainesville Regional Utilities	No	
Niagara Mohawk (DBA National Grid)	Yes	
WECC Reliability Coordination Comments Work Group (RCCWG)	Yes	The WECC RCCWG agrees with the revised Measures, assuming that there would be a 12 month requirement for emergency training for new hires. Please clarify this is a correct assumption.
PSEI	No	This process should only apply to those entities that are NERC approved providers awarding CEHs.

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 3:	Question 3 Comments:
Southwest Power Pool - Operations Training Working Group	Yes	
CECD	Yes	
PJM Interconnection, LLC	No	Due to the changes recommended above, all measures and sub-measures should be eliminated except for M1 and M3.
Salt River Project	Yes	
Pacific Gas and Electric Company	Yes	
Xcel Energy	Yes	
MRO NERC Standards Review Subcommittee	No	The MRO believes that the requirement in M1.2 to provide training materials could create an undo burden on the applicable entity if the audit was not conducted at the entity's site. The MRO recommends that this measure should be altered to reflect that concern.
Allegheny Power	Yes	
Public Service Commission of South Carolina	Yes	
WECC Operations Training Subcommittee	Yes	
ISO New England Inc.	Yes	
Entergy Services, Inc. System Planning & Operations (Generation & Marketing)	Yes	See the comment regarding "company specific" in question 1.
AEP	Yes	
ERCOT Inc.	No	M1 is fine, but as noted above M1.1 through M1.4 should be deleted along with R1.1 through R1.4. If R3 is changed, then M3 must be changed.
We Energies	Yes	
Santee Cooper	No	Santee Cooper feels that some of the items of evidence defined in the measures are not part of the SAT process (audit results, supervisor feedback). The SDT may have been trying to give some examples here but during an audit a company may be held to provide all the listed items as evidence. Including some words such as "shall have and provide upon request evidence that could include, but is not limited to" would help clarify that the list is examples only and that all items do not have to be provided during an audit.
BCTC	Yes	
Pepco Holdings, Inc. - Affiliates	Yes	Revise M1 to reflect the revised wording in R1 above. For example: Each RC, TA and TOP shall have available for inspection evidence of establishing a new or modifying an existing training program developed using a systematic approach to training. A 4th Requirement and a 4th Measure should be added - see our comments in 5 below
Baltimore Gas & Electric	Yes	
New York Independent System Operator	Yes	
FirstEnergy	No	M1.4 - The parenthetical examples are good to help with the compliance of R1.4, but entities may be tied down to these specific methods. Just to assure that other effective methods can be used, we suggest a rewording of M1.4 as follows: "The Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence that it performed a training program evaluation, as specified in R1.4 (evidence may include, but not limited to, instructor observations, trainee feedback, course evaluations, etc.)
Duke Energy Corporation	No	See response to question #1 above. All the requirements of this standard need to be revised and the measures should be developed to fit

Organization	Question 3:	Question 3 Comments:
		the revised requirements.
Ontario IESO	Yes	
Midwest ISO Stakeholder Collaborators	No	We are concerned that M1.2 could be burdensome. Specifically, what does have available for inspection mean? Training materials are often quite voluminous and can actually include systems such as simulators. We do not believe that the registered entity should be required to make these materials available for inspection off-site. We recommend modifying the measure to make it clear that inspection must occur at the location of the materials and systems to avoid this burden.

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

4. Do you agree with the revised Violation Severity Levels for each of requirement in the revised standard? If not, please explain in the comment area.

Organization	Question 4:	Question 4 Comments:
FRCC	No	For R1, the Medium VSL states "…..evaluating its training program efectiveness to…" The word effectiveness is not in the requirement and is vague. What does effectiveness mean and how would it be evaluated. We would recommend removing the word effectiveness and sticking to what the requirement states. For the High and Severe VSLs, the phrase "when developing a new or modifying an existing training program" is used. These words are not in the requirements and we are unclear as to how they should be evaluated. There is not a requirement to modify the training program, only to conduct an evaluation of the training program to identify changes. This phrase added into the VSL descriptions seems to imply more than the requirements actually state. Either remove this phrase or modify the requirements to be more clear. For the Severe VSL do the words "…failed to deliver training based on the BES company specific reliability related task list." mean that every task must be trined on, or only tasks from the list, or you only have to include some of the list to get the check off? For R2, the first part of the requirement only requires that verification of the operators capabilities be done at least one time. There is no time period specified. Then later in the requirement it speaks to verification within 6 months of a modification of the tasks. It looks like having the VSL be high when the responsible entity fails to verify capabilities within 6 months of a change is in conflict with having 90-100% verification be a medium since its quite possible that more than 90% would be verified, even without verifying the changed capabilities.
California ISO	No	Since we recommended deleting all R1 sub-requirements, all references to the "task list" should be changed to "BES company-specific reliability-related tasks"
Ohio Valley Electric Corporation	No	The Violation Severity Levels are all skewed towards the severe level. The Violation Severity levels should be skewed towards the lower level.
firstenergy	Yes	
Bonneville Power Administration	Yes	
tampa electric company	No	I do not agree that any part of a training program should have high or severe VRFs.
Operating Reliability Working Group (ORWG)	No	Why is missing one new or modified task just as severe as missing 30% of the existing tasks in R2?
LCRA	No	
Sacramento Municipal Utility District	Yes	The VSL should be either eliminated or at a minimum moved to lowest VSL. The verbiage seems ambiguous and it is debatable that a BES risk exists.
Northeast Utilities	Yes	For R2, VSL states "At least 90% but less than 100% of its system operator's capability to perform each assigned task." Is the measure for number of system operators or number of assigned tasks?
CAISO	No	No comment
NPCC Regional Standards Committee	No	For R3, there should be VSLs assigned for providing less than 32 hours of training, not just on the percentage of system operators receiving the 32-hour training.
Manitoba Hydro	Yes	Manitoba Hydro agrees with the revised VSL for each requirement.
SERC System Operator Subcommittee (SOS) of the SERC Operating Committee	No	All requirements of this standard need to be adequately defined before violation severity levels can be identified and applied.
MidAmerican Energy Company	Yes	
Grant County PUD	Yes	

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 4:	Question 4 Comments:
Cowlitz County PUD No. 1	Yes	
Arizona Public Service Company	Yes	
The Detroit Edison Company	No	Don and Mike to address.
E.ON U.S.	Yes	
SERC OC Standards Review Group (Project 2006-01)	No	All requirements of this standard need to be adequately defined before violation severity levels can be identified and applied.
Hydro One Networks - Reliability Standards Group	No	Where is the VSL for R1.1.1 (annual update to list of tasks)? As well, the VSL for R1.4 needs a time frame (see comment for question 1). Also, the VSL for R3 should be re-written based on number of hours of training completed or incomplete rather than % of operators trained. Having any operator untrained (less than xx hours/12 months) should be lumped into the Severe VSL.
American Transmission Company	Yes	R1 High VSL Suggested modification: Delete everything after "task list" Proposed language: The responsible entity failed to design and develop learning objectives and training materials based on the BES company-specific reliability related task list. The additional language in the draft does not appear in Requirement 1.2 and makes the VSL confusing. R1 Severe VSL. Suggested new language: The responsible entity does not have a task list in their systematic approach to training or The responsible entity failed to deliver the training as specified in their systematic approach to trainingR2 VSLATC would suggest that the SDT allow for the number of task to be a weight in the calculation of the percentages. Examples: Company a has ten operators and 100 tasks on their task list. Example: The responsible entity was unable to verify that two of its operator's were capable of performing 1 out of the 100 tasks listed in their SAT. (2 * 1) / (10 * 100) = .2% .2% - 100% = 99.8% The violation would fall in the Medium VSL. The way the current VSL is written it seem that the compliance auditor would use the following formula. 2 / 10 = 20%20% - 100% = 80% The violation would fall in the High VSLATC is requesting that both the number of operators and the size of the task list are included in the calculation for a VSL. R3 VSL ATC believe that both the number of operators and the amount of 32 hours not satisfied should be included in the calculation of the percentage. Examples: Company a has ten operators and each is required to have 32 hours of emergency operations training Example: The responsible entity verified that two of its operator's only completed 30 hours of emergency training. The remaining eight completed all the required hours. (2 * 2) / (10 * 32) = 1.25% 1.25% - 100% = 98.75% The violation would fall in the Medium VSL. The way the current VSL is written it seem that the compliance auditor would use the following formula. 2 / 10 = 20%20% - 100% = 80% The violation would fall in the High VSLR3 Severe VSL It is our interpretation that the list, specified in R3, are only examples of the types of training. (drills, exercises, and hands on training using, simulators) The language used in the Severe VSL for R3 seems to contradict our interpretation. If the SDT's intent of the list is to provide examples then we believe that the following language should be deleted. "The responsible entity did not include in its emergency training, the use of drills, exercises, and hands on training using simulators." Measure M3 seems to support our interpretation that it is only a list of examples.
Gainesville Regional Utilities	No	
Niagara Mohawk (DBA National Grid)	No	For R3, there should be VSLs assigned for providing less than 32 hours of training, not just on the percentage of system operators receiving the 32-hour training.
WECC Reliability Coordination Comments Work Group (RCCWG)	No	The WECC RCCWG believes that the Severe VSL for R3 should be worded as follows: "... The responsible entity did not include in its emergency training, the use of drills, exercises, OR (emphasis added) hands on training using simulators. The WECC RCCWG does not believe that all three types of training must be covered. Additionally, simulation can be accomplished without the use of a simulator.
PSEI	No	Administrative type violations should not result in High or Severe VSLs. Especially for the omission of a single task or piece of "evidence".
Southwest Power Pool - Operations Training Working Group	No	Most operators base their training schedules on a twelve month calendar instead of the six month limit as noted in the proposed standard on R2 High VSL. R3 High VSL makes no provision for hardships or mid-year hires.

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 4:	Question 4 Comments:
CECD	Yes	
PJM Interconnection, LLC	No	The R1 VSL should be based on the overall number of training components or modules that an entity is non-compliant with in comparison to the size of its overall training program. For example, if an entity does not use the SAT methodology in two of its 50 training modules, the VSL would be lower than if its total number of courses was only 20.The R2 VSL should be eliminated, as recommended above. The R3 VSL statement? OR The responsible entity did not?? Should be eliminated.
Salt River Project	Yes	
Pacific Gas and Electric Company	No	Much of this standard reflects documentation of an individual and their training program. Documentation of training is not a guarantee that operational errors won't occur, merely that training did or did not occur. In reviewing the VSLs we question why there is not a category of "Lower" added to the VSLs and why there is a category of "Severe". Is it to be assumed that lack of documentation is a possible precursor to an operator having an operational error on the BES? The VSLs need to reflect the affect on the BES from the lack of performing a requirement and lack of documentation for training on a dynamic system does not warrant a "Severe" level.
Xcel Energy	Yes	
MRO NERC Standards Review Subcommittee	No	Violation Severity Levels: R1, This requirement is based on using the SAT process (creating an Operator Task list and updating that Task list is part of the SAT process). The Lower VSL should read "The entity used at least 75%, but less than 100% of the SAT processes in its training program. The Medium VSL should read “The entity used at least 50% but less than 75% of the SAT processes in its training program. The High VSL should read " The entity used at least 25% but less than 50% SAT processes in its training program. The Severe VSL should read " The entity used less than 25% of the SAT process in its training program.R2, This requirement is based on the entity verifying that a System Operator can perform the task (list) identified in R1.1.The Lower VSL should read "The entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks.” The Medium VSL should read "The entity verified at least 80% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks.” The High VSL should read "The entity verified at least 70% but less than 80% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks.” The Severe VSL should read "The entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks."R3, This requirement is based on System Operators shall have 32 hours of emergency training per year. The written VSL for R3 is based on the number of System Operators not the hourly amount of training per System Operator. So, if we had 10 System Operators all with 31 hours of emergency training, we would be in the Severe VSL column. But if we had 10 System Operators, 9 with 32 hours, 1 with 0 hours of emergency training, we would be in the Medium VSL column. R3's VSLs need to be rewritten. The LOWER VSL should read "At least 1 System Operator had less than 32 hours of emergency training but greater than 30 hours. The Medium VSL should read "At least 1 System Operator had less than 30 hours of emergency training but greater than 28 hours. The High VSL should read "At least 1 System Operator had less than 28 hours of emergency training but greater than 26 hours. The Severe VSL should read "At least 1 System Operator had less than 26 hours of emergency training.
Allegheny Power	Yes	
Public Service Commission of South Carolina	Yes	
WECC Operations Training Subcommittee	No	By the definition of the VSL the administrative functions of non-compliance does not put the BES at risk, thus all the current VSL should include a lower VSL.
ISO New England Inc.	No	For R3, there should be VSLs assigned for providing less than 32 hours of training, not just on the percentage of system operators receiving the 32-hour training.
Entergy Services, Inc. System Planning & Operations (Generation & Marketing)	No	The VSLs should be as simple as possible. In general, complicated VSLs add unnecessary confusion to addressing compliance. The proposed VSLs for R1 weight each specific sub requirement in one of the VSL categories rather than taking the approach of how much of the SAT process is performed. We recommend a volumetric approach such as SEVERE = "the entity demonstrated less than 2 of the required elements of a SAT training program as identified in R1 through R 1.4".The proposed VSL for R2 is not consistent in its approach to the modified company-specific reliability task list. It should have a graduated scale just as the "original" task list. The proposed VSL for

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 4:	Question 4 Comments:
		R3 drops the "use of drills, exercises," into the Severe category. Eliminate this as this is defined in the requirement it self. If VSL will dependent upon how much training is accomplished using "drills, exercises," then the VSLs must be graduated as well. E.g. Severe = less than 18 hours of emergency training included drills, exercises, and hands on simulators".
AEP	No	R1 Medium VSL - Should be changed to read: "The responsible entity failed to utilize training materials designed and developed with learning objectives based on the BES company specific reliability related task list (when developing a new or modifying an existing training program)." R2 High VSL - The second part of the VSL after "OR" should be changed to read 12 months rather than 6 months as follows: "The responsible entity failed to verify its system operators? capabilities to perform each new or modified task within Twelve months of making a modification to its BES company-specific reliability related task list".R3 VSLs do not allow for hardships, mid-year hire of certified operators or mid-year certification of new operators. This means that just one operator not receiving the 32 hours of emergency training for any reason would constitute a Medium VSL. We believe each VSL should have the following statement (or similar clarification/exemption) added for R3: "Emergency Hours for system operators who have worked in real-time operations 10 months or less in the year due to hardship, military duty, or other reasons, will be exempt from the 32 hour requirement as follows: less than 10 but more than 8 months - 24 hours of emergency operations training is required; less than 8 months but more than 6 months - 16 hours of emergency operations training is required; less tan 6 months but more than 4 months - 8 hours of emergency operations training is required; less than 4 months - totally exempt".
ERCOT Inc.	No	When the sub-requirements of R1 are removed, the VSLs need to be completely revised. As written, the VSL for R1 is inconsistent with the requirement. The requirement is to use a systematic approach to training; nowhere does it mention "program effectiveness". This VSL would seem to be imposing a new requirement.
We Energies	No	R3 Severe VSL: The phrase "....the use of drills, exercises, and hands on training using simulators." is reasonably interpreted as "the use of drills and exercises and hands on training using simulators." This phrase should be reworded.
Santee Cooper	No	The Severe VSL for all requirements should be the responsible entity did not have a training program. Shift the medium VSL to the lower, the high VSL to the medium, etc. for all the requirements. It appears that an entity that has implemented a reasonable training program could be punished severely.
BCTC	No	Any violation of an administrative nature should not put the BES at risk, thus all the current Requirements that are of an administrative nature should have a lower VSL. Many of the Requirements are administrative issues. For example, if the administration is not done but training has been completed then the risk to the Power System is quite different than if training is not being done.
Pepco Holdings, Inc. - Affiliates	No	R1 the Medium VSL contains the word "effectiveness" this word should be removed, effectiveness is not mentioned as a part of Requirement 1. Revise the High VSL. Proposed wording: The responsible entity failed to show evidence of developing a new training program or modifying an existing program based on a systematic approach to training in that it did not develop new (or modify existing) learning objectives or design new (or modify existing) training materials based on its company specific reliability related task list Revise the Severe VSLs - examples: The responsible entity failed to show evidence of delivering training to its operators. OR it failed to show evidence of using a systematic approach to training in that it failed to create a list of company specific reliability related tasks upon which to develop a new training program or modify an existing one The High VSL for R2 concerning "verifying operators capabilities to perform new or modified tasks within 6 months" should be moved to Medium. As currently stated a company that failed to verify operators for one new or modified task but verified 100% of its operators on existing tasks would have a Violation Severity Level higher than a company that only verified 90% of its operators on existing tasks. The Severe VSL for R3 on use of drills, exercises etc. should be moved to Medium which would better reflect the suggested revised R3 and indicate that drills, exercises and hands on training simulations are of higher value than training classes alone for emergency operations training Additional VSLs should be developed to address the 4th Requirement proposed in 5 below. Example: R4 High. The responsible entity failed to show evidence that it used a systematic approach to training to develop a training program for its delegated tasks.R4 Severe The responsible entity failed to develop a training program for the entities to whom it has delegated tasks
Baltimore Gas & Electric	Yes	
New York Independent System Operator	No	Remove the relative term "effectiveness" from the medium VSL on R1. It is not a measurable quantity.
FirstEnergy	Yes	

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 4:	Question 4 Comments:
Duke Energy Corporation	No	See response to question #1 above. All the requirements of this standard need to be revised and the VSLs should be developed to fit the revised requirements.
Ontario IESO	No	For R3, there should be VSLs assigned for providing less than 32 hours of training, not just on the percentage of system operators receiving the 32-hour training.
Midwest ISO Stakeholder Collaborators	Yes	Violation Severity Levels: R1, This requirement is based on using a SAT process (creating an Operator Task list and updating that Task list is part of the SAT process). After reviewing the Violation Severity Levels Development Guidelines Criteria developed by the VSL Drafting Team, we believe this requirement could easily be classified as numerical performance. The numerical performance would be calculated based on the number of SAT processes used. The Lower VSL should read "The entity used at least 75%, but less than 100% of the SAT processes in its training program. The Medium VSL should read “The entity used at least 50% but less than 75% processes in its training program. The High VSL should read " The entity used at least 25% but less than 50% SAT processes in its training program. The Severe VSL should read “The entity used less than 25% of the SAT process in its training program. As an alternative, R1 could be classified as multi-component. After reviewing the Violation Severity Levels Development Guidelines Criteria developed by the VSL Drafting Team, we believe R2 can be classified as a numerical performance requirement as well. This requirement is based on the entity verifying that a System Operator can perform the task (list) identified in R1.1.The Lower VSL should read "The entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks.” The Medium VSL should read "The entity verified at least 80% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks.” The High VSL should read "The entity verified at least 70% but less than 80% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks.” The Severe VSL should read "The entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks.” After reviewing the Violation Severity Levels Development Guidelines Criteria developed by the VSL Drafting Team, we believe R3 can be classified as a numerical performance requirement as well. This requirement is based on System Operators shall have 32 hours of emergency training per year. The written VSL for R3 is based on the number of System Operators not the hourly amount of training per System Operator. So, if we had ten System Operators all with 31 hours of emergency training, we would be in the Severe VSL column. But if we had 10 System Operators, nine with 32 hours, one with zero hours of emergency training, we would be in the Medium VSL column. Thus, even though more total hours of training did not occur the latter example results in a lower severity. The VSLs need to consider the aggregate total of hours of training for all system operators. As one example, R3's VSLs could be rewritten. The LOWER VSL could read "At least one System Operator had less than 32 hours of emergency training but greater than 30 hours. The Medium VSL could read "At least one System Operator had less than 30 hours of emergency training but greater than 28 hours. The High VSL could read "At least one System Operator had less than 28 hours of emergency training but greater than 26 hours. The Severe VSL could read "At least one System Operator had less than 26 hours of emergency training. For another example, one could sum all of the system operators training hours and use a numerical performance VSL. For example, 10 system operators require a total of 320 hours of training. If a total of 240 hours of training is delivered to the 10 system operators, a violation has occurred with only 75% of the training occurring. For these VSLs to be effective, any hours over the minimum 32 hours required would have to be ignored and not considered in the calculation. VSLs for could be written as: The LOWER VSL could read "More than 75% of required training hours were delivered.” The Medium VSL could read "More than 50% but 75% or less of the required training hours were delivered.” The High VSL could read "More than 25% but 50% or less of the required training hours were delivered.” The Severe VSL could read "25% or less of the required training hours were delivered."

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

5. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Organization	Question 5 Comments:
FRCC	The proposed effective date of 36 months after the first day of the first calendar quarter following regulatory approval is unnecessarily long. What is the rationale for 36 months? In R1, we would suggest to revise "…..shall update its list of BES company-specific…." to say "…shall review and update if needed it's list of BES company-specific…." In R1.4 it is silent to how often an evaluation of the training program must be conducted but it also appears partially redundant with the annual requirement in R1.1. They should agree or a time requirement should be in only one place. If the intent was to establish a continuous improvement mechanism, the drafting team should consider directing the responsible entity to establish a monitoring and improvement program that includes an annual review of the task list and then implement it. That may be more clear. R1.3 is really ambiguous. Does it mean that training will have to be provided annually for every single task on the list? Does it mean every topic, every year? If so, does that make sense? If it is just one time, then it is redundant with R2. Is a long range plan that includes all elements over several years acceptable? Also, if it is training for a new operator, it might not be needed again because it is then performed routinely. This needs clarification. In R2, there is a typo, it should say "each of" instead of "each or". In section 1.1 Compliance Monitoring Period and Reset, what does Not Applicable mean? In section 1.3 Data Retention, the subparagraphs should be numbered 1.3.1, 1.3.2 etc rather than 1.4.1, 1.4.2 etc. In these paragraphs it refers only to compliance audits as the time period for keeping records, we assume this means an on-site compliance audit. Since audit periods can vary, ie 3 - 6 years, plus they can happen at other times depending on conditions, it would be more clear to state the retention time in years. We would suggest 3 years to be an appropriate time frame since on-site compliance audits of the RC, BA and TOP are to be at least every 3 years. Also, in the first paragraph of the section "investigation" should be changed to "compliance violation investigation" to avoid confusion with other types of investigations such as disturbance events analysis etc. And, in the last paragraph the Compliance Enforcement Authority should keep records according to the NERC Rules of Procedure. There is no need to spell it out here since it is already covered in the NERC Rules of Procedure. There is not a comment form for PER-004, however a redline is posted as part of the changes in the project. We do have a comment on R2 of PER-004. The last sentence states "The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times." There is no consideration to cost in this requirement. "...best available information at all times." is very broad and wide open. Data overload can be a reality, as can a diminishing return on investments to meet a requirement that will have a very small impact on reliability.
California ISO	No comment.
Ohio Valley Electric Corporation	With the lack of assessment or evaluation of the effectiveness of existing training programs required by PER-002 R3, why work to create a new training standard? With the lack of such an assessment, the work to develop a new training standard is not a judicious use of limited resources in order to strengthen the reliability of the bulk electric system. The NERC operation certification program already determines that operators possess the minimal requirements to reliably operate the bulk electric system. Why should a training program duplicate the certification process? Currently there is ample incentive to have operators trained on company-specific tasks. An operator who is not capable of performing company specific task will not remain an operator at that company.
firstenergy	The standard refers back to requirements R1.1 and R1.2 in several places. I did not see these in the draft 3 version of the standard that I was viewing.
Bonneville Power Administration	While agreeing with the proposed Violation Severity Levels, BPA considers the Violation Risk Factor assigned to requirement R1 to be too high. R1 is essentially administrative in nature, and this should be reflected in a VRF rating of Low. There is a tremendous workload

Organization	Question 5 Comments:
	involved in developing the training program described by the standard. The 3 year implementation plan proposed by the drafting team is adequate for this task. That said, to implement the training program as described, in a manner that reflects the quality and effectiveness expected by industry participants will require the full 3 years that has been allotted. The implementation time should not be shortened any Further, BPA agrees with the 6 month window for certifying competency in performing a task once a new task has been identified (R2.1). The standard does not provide a window for certifying competency in performing job tasks when a System Operator assumes a new position. BPA suggests providing a 1 year window for System Operators to complete the job task competency verification (R2) once they have assumed a new position. BPA supports a Standard requiring development, delivery, and evaluation of system operator training using a "systematic approach", and applauds the restraint the drafting team has shown by including only the essential elements of a systematic training program. BPA thanks the drafting team for your dedicated concern and efforts to improve our industry by helping entities develop valuable and effective training programs for System Operators.
tampa electric company	No comment.
Operating Reliability Working Group (ORWG)	R2 should be corrected to read '...verify each of its System Operator's...'.We feel the VRF for R2 is too high. It should be no higher than medium. As written R3 could be interpreted to require 32 hours of emergency operations training on a simulator. We appreciate the effort by the SDT to incorporate all the suggestions provided by the industry following the last posting. The current standard reflects considerable rewrite and we feel that this proposal is a significant improvement.
LCRA	To review, requiring a list of critical tasks, with no explanation as to what those tasks may be, only ensures that there will be a wide variance across the industry. It is not reasonable to expect that each utility will police itself. Common human nature dictates that individual utilities will pare the list down to whatever they can manage, not an all inclusive list. Were this standard to go into effect as currently written, I suspect utilities with large training staffs would have a large list, while small utilities will create a small list that they can manage. Whether or not an operator can perform the duties associated with his position is already handled by company specific procedures like performance reviews. If an operator is NERC certified has not that process already determined that the operator has a basic level of understanding? What happens if an operator fails one of these critical task evaluations? On the one hand he is NERC certified, yet he cannot perform a critical task. Would that then indicate that the certification process is flawed? What exactly is a critical task? What may seem critical and complex to a newly certified operator is old hat to one with 20 years of experience. Reliability related? Taking that term to its extreme limits, the ability to get in a car and drive to work could be construed as reliability related since if the operator cannot get to work reliability is compromised. Nearly everything a transmission operator does is reliability related. Other than eating lunch I cannot think of one single transmission operator task that is not reliability related in some way or another. Voltage control, switching, EECP, blackstart, etc, etc, etc. The list would simply be unmanageable. If NERC cannot effectively define a critical task in this standard, how can anyone else be expected to do so? What happens on an audit if the auditor shows up and decides the list is not comprehensive? Ultimately there is no definition of a critical task, thus this standard cannot be enforced. What about QSEs, generator operators, and field personnel such as relay technicians? They all have multiple tasks that impact reliability, yet I see no requirements for them. What good is a critical task analysis that only focuses on one group when multiple groups have impacts? What this standard would do is create an administrative monster that only the large training staffs could manage. Smaller utilities, such as my own, would be forced to strip the critical task list down as short as possible. Otherwise it could not be effectively managed. The net result would be something that can be managed for audits, not necessarily something that would do training any good. In fact, coupled with the already burdensome demands of the CE program, this requirement would move many trainers away from contact time to sitting at a computer and administering a critical task list. It comes down to this; What does NERC want me to do with my time? Train operators, or fill out paperwork?
Sacramento Municipal Utility District	R# Severe VSL column last row stating: "OR The responsible entity did not include in its emergency training, the use of drills, exercises, and hands on training using simulators." NERC should clarify what is meant by "training using simulators." Is this mandating the use of an OTS? Applicability of this standard should apply to all NERC registration types that impact the BESR2. This requirement should state " shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 annually." Minimum competencies should be maintained by the system operator and certified by the registered entitiy. This standard should mandate the system operator passing an exam/evaluation. R3. This standard should mandate the system operator to pass a written and/or simulation exam to be credited the 32 hours of training
Northeast Utilities	Is it correct that this standard does not apply to NERC-certified individuals in non-System Operator roles? (reference PER-003 R1.) e.g. - a

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 5 Comments:
	System Operator's supervisor.R1.1.1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall REVIEW its list of BES company-specific reliability-related tasks performed by its System Operators at least annually to identify new or modified tasks for inclusion in training. One should REVIEW the task list to determine if there is a need to UPDATE - whenever there is a change to the system, procedures, operator tools, etc. TYPO in R2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each OF (not "or") its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time.
CAISO	No comment.
NPCC Regional Standards Committee	NPCC members appreciate the efforts of the SDT in creating this latest version. We do not understand the distinctions made (under the Compliance Enforcement Authority in the Compliance Monitoring Process) between RCs and other functional entities that work for the Regional Entity AND those that do not work for the REs. Please provide examples of RCs and functional entities that work for an RE, which, as a standard developer and compliance monitor per the functional model do not have any operating and planning functions that require employing RCs or any other functional entities. However, we do realize that there are REs that are requested by membership in a region through a contractual agreement to perform the RC function for them. In this case, it is the RE that is by contractual arrangement to operate the RC on the membership's behalf, not an employment of an RC by an RE (i.e. an RC working for an RE). If the SDT is referring to this type of set up, please revise the language accordingly. In R3 suggest changing drills, exercises and hands on training using simulators to drills, exercises and hands on training using simulators (if available).
Manitoba Hydro	No comment.
SERC System Operator Subcommittee (SOS) of the SERC Operating Committee	Our group supports the use of a Systematic Approach to Training in the design, development and delivery of effective personnel training programs. However, the lack of clarity in the requirement statements is a cause for some concern. Each requirement in this standard should be re-examined to assure clarity of evidence required, adequate definition of terms, and consistency with the associated measures and violation severity levels.
MidAmerican Energy Company	The Requirement numbers are not consistent with the wording in other sections. For example the R2.2 references R1.1 but should reference 2.1. This made commenting very difficult.
Grant County PUD	No comment.
Cowlitz County PUD No. 1	Typographical error in Requirement 2: "...shall verify each or its System Operators capability..." should read "...shall verify each of its System Operators capability..."
Arizona Public Service Company	No comment.
The Detroit Edison Company	We do not agree with complaints being included in section 1.3 Compliance Monitoring and Enforcement Processes. Compliance audits, Self-Certifications, Spot Checking, Compliance Violation Investigations, and Self-Reporting is adequate to ensure entity compliance. We believe Attachment A: Generic Task List is valuable information and should be included in the PER-005 System Operator Training Reference Document as Reference #3.
E.ON U.S.	No comment.
SERC OC Standards Review Group (Project 2006-01)	Our group supports the use of a Systematic Approach to Training in the design, development and delivery of effective personnel training programs. However, the lack of clarity in the requirement statements is a cause for some concern. Each requirement in this standard should be re-examined to assure clarity of evidence required, adequate definition of terms, and consistency with the associated measures and violation severity levels. Requirements R1.1 through R1.4 of PER-005 can be interpreted as requiring each entity to develop and deliver its total training program in-house and not allow the use of vendors in developing and implementing its training requirements. For example, R1.3 states, ?Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall deliver the training established in R1.2.?. We suggest that replacing the word ?deliver? with ?make available? or ?ensure delivery of? would clarify this misconception. Finally, in R2 there is a typo: the word ?or? should be changed to ?of?.
Hydro One Networks - Reliability Standards Group	No comment.
American Transmission Company	Requirement 1: ? ? The following language should be removed from the requirement 1. ? ? "?to establish a new or modify an existing training program(s)?" ? ? It's our position that the language does not provide any additional clarity but adds confusion to the requirement. ATC believes that the language makes sense for the short term, (FERC approval followed by implementation period) but in the long term

Organization	Question 5 Comments:
	this information is unnecessary. Once an entity has a SAT the language in question would require an entity to modify or develop a new program even if neither is required. ? ? Proposed change:? ? "Each RC, BA and TOP shall use a systematic approach to training for the Bulk Electric System (BES) company-specific reliability-related tasks performed by its System Operators."? ? ATC believes that our suggested modification accomplishes the intent of the SDT and addresses our concern with the long-term implementation of this standard.? R1.1? ? The word "create" should be replaced with "document".? ? This change does not alter the intent of the Requirement but simple states what the entities needs to have. ? ? Proposed change: ? ? Each RC, BA and TOP shall document a list of BES company-specific reliability-related tasks performed by its System Operators. ? ? Once the initial list is developed you will no longer create a list, but the proposed language would have entities re-create the list annually. ? ? R1.1.1? ? The requirement should be modified to only require annual reviews. Updates to the list are dependant on the company and are not a NERC issue. ? ? Proposed change: ? ? Each RC, BA and TOP shall annually review its list of BES company-specific reliability-related tasks performed by its System Operators.? ? New Requirement 1.1.2? ? Each RC, BA and TOP shall identify new or modified tasks during the annual review. ? ? R3: ? ? The "12 months" should be replaced with "annual". If the SDT does not agree with the change then they need to confirm how the 12 months is going to be determined. Ultimately ATC is concerned that the 12 months could be interpreted to mean a rolling 12-month period which would make compliance with this standard extremely difficult as it would essentially require a company to ensure that each of its Scots completed 32 hours of emergency training within any 12-month sliding window during the year; i.e. at an average rate of 2.67 hours per month. Typically, this is not how the emergency hour training is completed. Rather, it is completed in ?lumps.? ATC understands that the 12-month concept was introduced to account for new operating personnel. With that in mind, ATC proposes that the Standard call out the provision to pro-rate training specifically as detailed below. ? ? Proposed language: ? ? On an annual basis, each RC, BA and TOP shall provide each of its System Operators with 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics (which includes system restoration). For each new System Operator, the required number of hours of emergency operations training shall be prorated to the nearest whole number of hours based upon the number of full months worked during that calendar year. (Examples of training: drills, exercises, and hands on training using simulators)? ? The additional changes are to:? Clarify the prorated training requirement; i.e. an operator beginning work on Dec. 31st would have an emergency hour training requirement of 0 hours, an operator beginning work on June 15th would have an emergency hour training requirement of 16 hours and an operator beginning work on Jan. 15th would have an emergency hour training requirement of 30 hours for that calendar year.? 2. Clearly identify the list as examples that can be used but not methods that must be used.
Gainesville Regional Utilities	No comment.
Niagara Mohawk (DBA National Grid)	We propose the following minor edits for clerification.R1.1.1 change to "...shall review and update as necessary its list of BES company specific reliability related tasks...". The task should be reviewed annually and then updated as necessary. In some cases an update may not be needed.R3 Replace "...using training, drills, exercises, and hands on training using simulators" with "using various methods of training such as drills, exercises, classroom presentations, or hands on training using simulators". This reads better since drills, etc. are all forms of training. In addition these need to be examples of training methods not required training methods since some entities do not have training simulators, thus the addition of "or". In addition, we do not understand the distinctions made (under the Compliance Enforcement Authority in the Compliance Monitoring Process) between RCs and other functional entities that work for the Regional Entity AND those that do not work for the REs. Please provide examples of RCs and functional entities that work for an RE, which, as a standard developer and compliance monitor per the functional model do not have any operating and planning functions that require employing RCs or any other functional entities. However, we do realize that there are REs that are requested by membership in a region through a contractual agreement to perform the RC function for them. In this case, it is the RE that is by contractual arrangement to operate the RC on the membership's behalf, not an employment of an RC by an RE (i.e. an RC working for an RE). If the SDT is referring to this type of set up, please revise the language accordingly.
WECC Reliability Coordination Comments Work Group (RCCWG)	The WECC RCCWG believes that R2 in PER-004-2 is mis-placed and does not belong in a standard that covers staffing. Specific requirements for SOLs, IROLs, and inter-tie facility limits belong in IRO standards, not in a PER standard.
PSEI	I appears that the ideas going into this standard are designed such that it can only be achieved by large organizations with not only a trainer, but training staff and lots of resources. Putting requirements in place that demand all organizations meet the same expectations as

Organization	Question 5 Comments:
	the larger ones is unfair, unrealistic and removes any flexibility small utilities have. If there is such a need for the SAT to be in place, use it in conjunction with the System Operator Certification program. There is already a detailed process in place for this and allows smaller utilities to have options other than hiring more staff or requiring the purchase of simulators.
Southwest Power Pool - Operations Training Working Group	R1.2 - The wording of R1.2 should refer to "utilizing designed training materials" with learning objectives based on the task list, rather than "designing training materials" with learning objectives based on the task list. Some training is purchased from vendors to satisfy training need rather than designing the training in-house. We suggest the wording be modified as follows: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall utilize training materials designed and developed with learning objectives that are based on the task list created in R1.1." R2 Risk Factor - The "Risk Factor" should be "Medium" in-line with the risk factor of R1. The risk factor to verify performance of the reliability tasks (R2) should not be higher than the risk factor for identifying the reliability tasks (R1). R3 - This requirement requires all entities large or small to have a simulator or buy hands on simulator exercises from a vendor "that applies to their system". We believe the word simulator should be changed to "simulation" as follows: "??.using training, drills, exercises, and hands on training using simulations". The related VSLs would need the word changed also. If the intent of the standard is for the individual entity to purchase a computerized simulator package, it could be quite burdensome on the company.R3.1 - To assure R3.1 is in aligned with our comments on R1.2, based on the fact that some training may be purchased training delivered by a vendor, we suggest rewording of R3.1. Change the word "deliver" to the word "utilize" as follows: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall utilize the training established in R1.2." A suggested Reliability Task List should be included in the reference material to the standard as a base guideline for entities to build their task list. Purpose: We feel the words "competent" and "competency" in the purpose statement should be changed to "capable" and "capability" to reflect the wording in M2. We appreciate the effort by the SDT to incorporate all the suggestions provided by the industry following the last posting. The current standard reflects considerable rewrite and we feel that this proposal is a significant improvement.
CECD	It is not appropriate to require all BAs and TOPs to have hands on simulator training. FERC's directives indicated that "the ERO needed to develop a requirement for the use of simulators dependent on the entity's role and size" and that it would be appropriate to limit such a requirement to RCs, TOPs, and BAs that have operational control over a significant portion of load and generation." There is an error in R2, second line "each or its System Operator's". Delete "or its". R3. The phrase "that reflects emergency operations topics" should be modified to state "on emergency operation topics" or "that reflects emergency operating conditions."
PJM Interconnection, LLC	Since one of the elements of the SAT methodology is to "Evaluate not only worker performance of the objectives, but also the ability of the curriculum to meet the stated objectives", R2 is unnecessary, as R1 already requires the use of the SAT methodology. This requirement should be deleted.
Salt River Project	No comment.
Pacific Gas and Electric Company	In reviewing the purpose statement the words "competent" and "competency" do not align with wording in the requirements or the measures. We believe competency of an individual is directly reflected in their performance and therefore performance is governed by their supervisor or manager. In many instances trainers provide training to individuals on a limited basis throughout the year, of which, during that time the individual's performance in assessed for his capability to perform a task. We suggest changing the purpose statement to the following: "To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are capable to perform those reliability-related tasks." "The capability of the System Operators is critical to the reliability of the North American Bulk Electric System."
Xcel Energy	No comment.
MRO NERC Standards Review Subcommittee	In R2, the current language could be read that the System Operator needs to be capable of performing the task at least one time, but the intent is to perform the verification at least one time. This can be clarified by rearranging the sentence to be "?shall verify at least one time that each of its System Operator's are capable of performing each task identified in R1.1."R3, There seems to be some confusion in the industry about what would be classified as a simulator per this requirement. The definition of the term simulator can range from a simulator attached to the EMS, a custom built simulator to represent one's utility structure, a generic simulator similar to the one that EPRI had offered for no cost in the past, table top simulations or even computer class simulations that qualify as simulation hours in the NERC CEH program. In paragraph 1391 of FERC order 693, FERC recognizes the fact that it would be impractical for small entities to develop and maintain full-scale simulators and suggests that the small entities use generic simulators or realistic table top exercises in there place.

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 5 Comments:
	FERC goes on in paragraph 1391 to direct the ERO "to develop a requirement for the use of simulators dependent on the entity's role and size". The MRO requests that the SDT define what it means by 'simulator' and "who should use this simulator" and revise the requirement as appropriate to meet the FERC 693 directives. R3, The Requirement states '.....32 hours of emergency operations training applicable to its organization that reflects emergency operations topics (which includes system restoration) using training, drills, exercises, and hands on training using simulators.' Is this requirement setup to require each operator to have at least some simulator training every 12 months, or is the requirement only providing a list of training options? The MRO requests clarification on this requirement. Data Retention: Does 1.4.4 say that if someone is found non-compliant they only have to keep records until they are found to be compliant? This goes against the previous three paragraphs. This could be corrected if "or since the last compliance audit, which ever is greater." is added to the end of the sentence.? Risk Factors: ? ? R1, should be changed to "Lower Risk Factor", since it is administrative in nature, per NERC Reliability Standards Development Procedure. If an entity had the first four steps to the SAT process but an incomplete Evaluation, this would not "affect the electrical state or capability of the bulk power system".
Allegheny Power	No Additional comments
Public Service Commission of South Carolina	On Page 1 of 2 of Implementation Plan for PER-005-1 - System Personnel Training, strike the word "months" under PER-005-1 Requirements in the box for R3.
WECC Operations Training Subcommittee	The definition of Bulk Power vs. Bulk Electric System needs to be clearly defined in order to be utilized as a basis for the standards with respect to systems that the RRO has defined as not affecting the BES.
ISO New England Inc.	We do not understand the distinctions made (under the Compliance Enforcement Authority in the Compliance Monitoring Process) between RCs and other functional entities that work for the Regional Entity AND those that do not work for the REs. Please provide examples of RCs and functional entities that work for an RE, which, as a standard developer and compliance monitor per the functional model do not have any operating and planning functions that require employing RCs or any other functional entities. In R3 suggest changing drills, exercises and hands on training using simulators to drills, exercises and hands on training using simulators (if available).
Entergy Services, Inc. System Planning & Operations (Generation & Marketing)	It appears that only the Requirement (R1, R2, R3) have VRFs and VSLs. Do the VRFs and VSLs apply to the sub-requirements and can an entity be penalized for the requirement and the sub-requirement? (e.g. if an entity does not create the list required in R1.1 will they receive a penalty for R1 and R1.1?)Regarding PER-004-2 R2 - the requirement does not belong in a RC "staffing" standard. This general statement requirement is adequately covered in the IRO-005 standard and should be deleted as part of this revision or a future revision/review of IRO-005.
AEP	R1.2 - The wording of R1.2 should refer to "utilizing designed training materials" with learning objectives based on the task list, rather than "designing training materials" with learning objectives based on the task list. Some training is purchased from vendors to satisfy training need rather than designing the training in-house. We suggest the wording be modified as follows: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall utilize training materials designed and developed with learning objectives that are based on the task list created in R1.1."R2 Risk Factor - The "Risk Factor" should be "Medium" in-line with the risk factor of R1. The risk factor to verify performance of the reliability tasks (R2) should not be higher than the risk factor for identifying the reliability tasks (R1). R2.1 - We believe this requirement should specify 12months (rather than 6 months) for performance verification following identification of new or modified tasks. Often, tasks change or are modified gradually do to operator adaptation of influencing parameters. Therefore operators often adapt to the task modification without formal training, and well before the task is updated in the list. Annual review of the task list (specified in R1.1.1) will likely set the stage for the needed annual training on the tasks, whether modified, new, or existing tasks just needing improvement in operator performance. The continuing education training plan is typically scheduled annually targeting operator training needs including certification maintenance training and emergency training. Consequently it would be best to schedule new and modified task training along with the operator's annually scheduled CE training. Specifically R2.1 should read: "Within twelve months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks".R3 - This requirement could be interpreted to require all entities large or small to have a simulator or buy hands on simulator exercises from a vendor "that applies to their system". We believe the word simulator should be changed to "simulation" as follows: "??.using training, drills, exercises, and hands on training using simulations". The related VSLs would need the word changed also.R3.1 - To assure R3.1 is in aligned with our comments on R1.2, based on the fact that some training may be purchased training delivered by a vendor, we suggest rewording of R3.1 change the

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 5 Comments:
	word "deliver" to the word "utilize" as follows: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall utilize the training established in R1.2."Purpose - In item 3 of the Introduction to the Standard "Purpose", the word "competent" should be changed to "capable" to align with Measurement M2. Specifically ?. "To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are "capable" to perform those reliability related tasks. The Reliability Task List (previously attached to draft 2) should be included with the reference material that can be referenced for the standard, such as along with the references for the systematic approach to training (ADDIE, DOE references, etc.). We appreciate the effort by the SDT to incorporate all the suggestions provided by the industry following the last posting. The current standard reflects considerable rewrite and we feel that this proposal is a significant improvement.
ERCOT Inc.	The requirements say to create a task list and develop objectives and materials based on that list. This could be burdensome, and doesn't have to happen if the SAT process if followed. Objectives and materials should only required on tasks identified for training, before that training is conducted, not every task performed before any training is conducted.? ?In meeting R2, the entity may determine that their operators need no training on the tasks in their list. R1.2 (which we recommend goes away) requires development of objectives and training materials regardless of need. R1.3 (which we also recommend go away) requires they deliver training on those objectives and materials. Therefore there actually would be a justifiable argument that under almost any SAT process, R1.2 and R1.3 could be considered to be an unnecessary and unreasonable burden until an organization would have to replace an operator with an ignorant, off-the-street individual; an unlikely scenario for many.? ?Arbitrarily creating such requirements flies in the face of any SAT process.? ?Even if the entity changes something about a task(s), it is very possible that R2.1 can be accomplished with no ?formal? training.? ?On R3: If the SAT process is believed, then the 32 hour emergency training requirement is bogus. The 32 hour requirement was instigated as an interim act in the absence of an organizational SAT process for System Operators. ? ?If NERC is going to continue to specify topics and times, then don't preen and pretend to advocate the SAT process. The old guide has a list of topics, and the PSS can certainly apply their expertise to assign times; this would simplify the process for the whole industry. Of course this would be mostly for show, but then so is the 32 hour requirement.? Now let's look at the Purpose of PER-005. That should be changed. It should read: "To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent." The words "The competency of System Operators is critical to the reliability of the North American Bulk Electric System." is an observation, not a purpose.
We Energies	R2: Typographical error "...shall verify each OF its System Operator's..."R3: The phrase"...using training, drills, exercises, and hands on training using simulators." is reasonably interpreted as "...using training and drills and exercises and hands on training using simulators." This phrase needs to be reworded. Data Retention 1.4.4: 1.4.1, 1.4.2, and 1.4.3 reference a requirement and measure. Should this one also reference requirements and measures?
Santee Cooper	Clarity should be provided in the requirements that training can be provided through the use of vendors or in-house as long as the SAT process is utilized. In addition, the training standard needs to be written such that a smaller entity is able to comply with the standard without employing the use of vendors or consultants.
BCTC	The definition of Bulk Power System vs. Bulk Electric System needs to be clearly defined in order to be utilized as a basis for the standards. Until the BES vs. BPS issue is cleared up this should not be used as a basis for Standards.
Pepco Holdings, Inc. - Affiliates	We are concerned that this standard does not address the specific directions of FERC Order 693 to include local control centers that can take independent actions, in this standard. We think the standard should be revised to include a new Requirement 4:R4. Each Reliability Coordinator, Balancing Authority, and Transmission Operator that delegates tasks for which it is responsible to another entity shall develop or modify an existing training program using a systematic approach to training for the set of tasks it has delegated to other entities.[Risk Factor: Medium] [Time Horizon: Long-term Planning]R4.1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator who has developed a training program for its delegated tasks shall ensure through a monitoring program that the training program for the delegated tasks meets the equivalent requirements of R2 and R3 of this standardR4.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator who has delegated tasks for which it responsible shall maintain a list of the entities to whom tasks have been delegated and of the tasks that have been delegated and provide the list to its Regional Entity.M4. Each RC, BA, and TOP shall have available a training program for its delegated tasks developed through a systematic approach to training.M4.1 Each RC, BA and TOP shall have evidence that the training program for its delegated tasks meets the equivalent of R2 and R3.M4.2 Each RC, BA and TOP shall have

Comments on 3rd Draft of System Personnel Training Standard (Project 2006-01)

Organization	Question 5 Comments:
	evidence that it provided to its Regional Entity the list of the entities to which it has delegated tasks and the delegated tasks.
Baltimore Gas & Electric	We recommend that NERC provide industry training on the development of a training program and include detailed instructions on "a systematic approach to training", how to compile a "list of BES company-specific reliability-related tasks", explain expectable verification methods for "System Operator's capabilities to perform each assigned task", etc.
New York Independent System Operator	Regarding R3 "using training, drills, exercises and hands-on training?" can actually be just "training". "Drills, exercises and hands on" are methods of training that can be used and remove the corresponding Severe VSL. Replace six months with 30 days.
FirstEnergy	FE has the following additional comments/suggestions: R3 - The last part of this requirement, "? (which includes system restoration) using training, drills, exercises, and hands on training using simulators.", may be both confusing and not all inclusive. The following is an explanation of our concerns:(a) The phrase in parenthesis "which includes system restoration" seems to only capture one of the several important emergency operations topics. We feel that it should either be removed, or expanded to include the other important topics which include "Capacity and Energy Emergencies" and "Load shedding".(b) The phrase "using training, drills, exercises, and hands on training using simulators" may be confusing and a couple of the terms are not clearly defined. We are not sure of the meaning and differences in the terms "drills" and "exercises". At the very least, we believe these terms could be combined into one subset of the required training. Also, for better clarity, we think these subsets of the training should be bulleted under R3. We suggest rewording R3 as follows:R3. At least every 12 months each Reliability Coordinator, Balancing Authority, and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics using all of the following [Risk Factor: Medium] [Time Horizon: Long-term Planning]:- classroom training- drills and/or exercises- hands on training using simulators.
Duke Energy Corporation	Requirements of this standard should be revised to reflect that training may be developed and delivered by a third party under contract.
Ontario IESO	(1) We do not understand the distinctions made (under the Compliance Enforcement Authority in the Compliance Monitoring Process) between RCs and other functional entities that work for the Regional Entity AND those that do not work for the REs. Please provide examples of RCs and functional entities that work for an RE, which, as a standard developer and compliance monitor per the functional model do not have any operating and planning functions that require employing RCs or any other functional entities. However, we do realize that there are REs that are requested by membership in a region through a contractual agreement to perform the RC function for them. In this case, it is the RE that is by contractual arrangement to operate the RC on the membership's behalf, not an employment of an RC by an RE (i.e. an RC working for an RE). If the SDT is referring to this type of set up, please revise the language accordingly.
Midwest ISO Stakeholder Collaborators	No comment.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consideration of Comments on 3rd Draft of System Personnel Training Standard

The System Personnel Training Standard Drafting Team (SPT SDT) thanks all commenters who submitted comments on the third draft of the standard. This standard was posted for a 45-day public comment period from February 25, 2007 through April 9, 2007. The drafting team asked stakeholders to provide feedback on the standard through a special Standard Comment Form. There were more than 51 sets of comments, including comments from more than 100 different people from approximately 100 companies representing 9 of the 10 Industry Segments as shown in the table on the following pages.

In this document, the SPT SDT's consideration of comments is provided in blue text immediately following each comment submitted for each question. A summary response to each question is highlighted in yellow following each question. The following conforming changes were made to the standard:

- Modified the Proposed Effective Date for Requirement 1 and Requirement 2 from 36 months after regulatory approval to 24 months after regulator approval.
- Clarified Requirement 1.4 to reflect an annual evaluation of the training program to identify any needed changes.
- Modified Requirement 3 to mandate System Restoration Training and provide clarity as to the methods of training that could be used.
- Added Requirement 3.1 to provide for emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions for certain entities.
- Clarified the Data Retention Section to reflect the required retention periods.
- Modified the Requirement 3 VSLs to provide clarity in compliance violations regarding the use of simulation/simulator training.

In this "Consideration of Comments" document stakeholder comments have been organized so that it is easier to see the responses associated with each question. All comments received on the standards can be viewed in their original format at:

http://www.nerc.com/~filez/standards/System-Personnel-Training.html

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Gerry Adamski, at 609-452-8060 or at gerry.adamski@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Reliability Standards Development Procedures: http://www.nerc.com/standards/newstandardsprocess.html.

Index to Questions, Comments, and Responses

Individual or group.	Name	Organization	Registered Ballot body segment (check all industry segments in which your company is registered)	
1. Individual	Linda Campbell	FRCC	10 - Regional Reliability Organization/Regional Entity	
2. Individual	Frank Cumpton	California ISO	2 - RTOs and ISOs	
3. Individual	George Brady	Ohio Valley Electric Corporation	1 - Transmission Owners	
4. Individual	Art Buanno	FirstEnergy	1 - Transmission Owners, 3 - Load-serving Entities, 5 - Electric Generators	
5. Individual	Denise Koehn for Brian Tuck and other SMEs	Bonneville Power Administration	5 - Electric Generators, 6 - Electricity Brokers, Aggregators , 3 - Load-serving Entities, 1 - Transmission Owners	
6. Individual	Stephen Joseph	Tampa Electric Company	1 - Transmission Owners, 5 - Electric Generators, 3 - Load-serving Entities	
7. Group	Robert Rhodes	Operating Reliability Working Group (ORWG)	1 - Transmission Owners, 2 - RTOs and ISOs, 3 - Load-serving Entities, 5 - Electric Generators	
8. Individual	Steve Rainwater	LCRA	1 - Transmission Owners	
9. Individual	Jim Fee	Sacramento Municipal Utility District	1 - Transmission Owners	
10. Individual	Rick White	Northeast Utilities	1 - Transmission Owners	
11. Individual	Steve Hall	CAISO	2 - RTOs and ISOs	
12. Group	Guy Zito	NPCC Regional Standards Committee	10 - Regional Reliability Organization/Regional Entity	

	Additional Member	Additional Organization	Region	Segment Selection
1.	Brian Berkstresser	Empire District Electric	SPP	1, 3, 5
2.	Mike Gammon	Kansas City Power & LIght	SPP	1, 3, 5
3.	Allen Klassen	Westar Energy	SPP	1, 3, 5
4.	Kyle McMenamin	Southwestern Public Service	SPP	1, 3, 5
5.	Fred Meyer	Empire District Electric	SPP	1, 3, 5
6.	Mike Murray	City Power & Light (Independence, MO)	SPP	1, 3, 5
7.	Robert Rhodes	Southwest Power Pool	SPP	2
8.	Jason Smith	Southwest Power Pool	SPP	2

	Additional Member	Additional Organization	Region	Segment Selection
1.	Lee Pedowicz	NPCC	NPCC	10
2.	Ralph Rufrano	New York Power Authority	NPCC	1
3.	David Kiguel	Hydro One	NPCC	1
4.	Donald Nelson	Massachusetts Department of Public Utilities	NPCC	9
5.	Ronald Hart	Dominion Resources, Inc.	NPCC	3
6.	Ben Li	Independent Electricity System Operator	NPCC	2
7.	Brian Evans-Mongeon	Utility Services, LLC	NPCC	8
8.	Murale Gopinathan	Northeast Utilities	NPCC	1
9.	Michael Ranalli	National Grid	NPCC	1

Individual or group.	Name	Organization	Registered Ballot body segment (check all industry segments in which your company is registered)	
				10. Biju Gopi — Independent Electricity System Operator — NPCC — 2 11. William DeVries — New York Independent System Operator — NPCC — 2 12. Kathleen Goodman — ISO New England — NPCC — 2 13. Edwin Thompson — Consolidated Edison Company of New York, Inc. — NPCC — 1 14. Sylvain Clermont — Hydro-One TransEnergie Networks — NPCC — 1 15. Roger Champagne — Hydro-Quebec TransEnergie — NPCC — 1 16. Alan Adamson — NY State Reliability Council — NPCC — 10
13. Individual	Kris Manchur	Manitoba Hydro	1 - Transmission Owners, 6 - Electricity Brokers, Aggregators , 5 - Electric Generators, 3 - Load-serving Entities	
14. Group	Margaret R. Stambach	SERC System Operator Subcommittee (SOS) of the SERC Operating Committee	10 - Regional Reliability Organization/Regional Entity, 4 - Transmission-dependent Utilities, 5 - Electric Generators, 3 - Load-serving Entities, 2 - RTOs and ISOs, 1 - Transmission Owners	
15. Individual	Christopher R. Schneider	MidAmerican Energy Company	3 - Load-serving Entities, 5 - Electric Generators, 1 - Transmission Owners	
16. Individual	AJ Moore	Grant County PUD	1 - Transmission Owners, 5 - Electric Generators, 9 - Federal, State, Provincial Regulatory, or other Government Entities, 3 - Load-serving Entities	
17. Individual	Russell A. Noble	Cowlitz County PUD No. 1	3 - Load-serving Entities	
18. Individual	Mike Scott	Arizona Public Service Company	1 - Transmission Owners	
19. Group	Daniel Herring	The Detroit Edison Company	3 - Load-serving Entities, 5 - Electric Generators, 4 - Transmission-dependent Utilities	**Additional Member** / **Additional Organization** / **Region** / **Segment Selection** 1. Mike Saksa — DECO — RFC — 3, 4 2. Don Boyer — DECO — RFC — 5 3. Jeff DePriest — DECO — RFC — 5
20. Group	Brent Ingebrigtson	E.ON U.S.	5 - Electric Generators, 6 - Electricity Brokers, Aggregators , 3 - Load-serving Entities, 1 - Transmission Owners	
21. Group	Jim S. Griffith	SERC OC Standards Review Group (Project 2006-01)		**Additional Member** / **Additional Organization** / **Region** / **Segment Selection** 1. Gene Delk — SCE&G — SERC — 1, 3, 5 2. Danny Dees — MEAG — SERC — 1, 3, 5, 9 3. Dan Jewell — LA Generating, LLC — SERC — 1, 3, 5, 9 4. John Neagle — AECI — SERC — 1, 3, 5, 9 5. Joel Wise, Sue Mangum Goins, Kathy Davis, Dean Robinson, Rick Woodlee, Mike Fielden — TVA — SERC — 1, 3, 5, 9 6. Barry Warner, Steve Stiles, Arthur Simpson — EKPC — SERC — 1, 3, 5, 9 7. Rocky Williamson — Georgia Power — SERC — 1, 3, 5

Individual or group.	Name	Organization	Registered Ballot body segment (check all industry segments in which your company is registered)	
				8. Randy Wilkerson — Progress Energy Carolinas — SERC — 1, 3, 5 9. Robert Thomasson — BREC — SERC — 1, 3, 5, 9 10. Jim Case, Donnie Harrell, Wayne Mitchell, Mark Brown — Entergy — SERC — 1, 3 11. Rene' Free, Kristi Boland — SCPSA — SERC — 1, 3, 5, 9 12. DeWayne Roberts — Owensboro Municipal Utilities — SERC — 1, 3, 5, 9 13. James Ford — Southern Company — SERC — 1, 3, 5 14. Wayne Pourciau — GA Systems Operations Corp. — SERC — 1, 3, 5, 9 15. John Rembold — SIPC — SERC — 1, 3, 5, 9 16. Carter Edge, Margaret Stambach, John Troha — SERC — SERC — NA
22. Individual	Alessia Dawes	Hydro One Networks - Reliability Standards Group	1 - Transmission Owners, 3 - Load-serving Entities	
23. Individual	Jason Shaver	American Transmission Company	1 - Transmission Owners	
24. Individual	Mark L Bennett	Gainesville Regional Utilities	5 - Electric Generators	
25. Individual	Michael Schiavone	Niagara Mohawk (DBA National Grid)	3 - Load-serving Entities	
26. Group	Nancy Bellows	WECC Reliability Coordination Comments Work Group (RCCWG)	2 - RTOs and ISOs	**Additional Member** — **Additional Organization** — **Region** — **Segment Selection** 1. Terry Baker — PRPA — WECC — 2 2. Paul Bleuss — CMRC — WECC — 2 3. Gregory Campbell — RDRC — WECC — 2 4. Mike Gentry — SRP — WECC — 2 5. Bob Johnson — Xcel — WECC — 2 6. Don Pape — WECC — WECC — 2 7. Linda Perez — WECC — WECC — 2 8. Dick Schwarz — PNSC — WECC — 2 9. Greg Tillitson — CMRC — WECC — 2
27. Individual	Todd Lietz	PSEI	4 - Transmission-dependent Utilities, 3 - Load-serving Entities, 5 - Electric Generators, 1 - Transmission Owners	
28. Group	Ron Maki / John Kerr	Southwest Power Pool - Operations Training Working Group	2 - RTOs and ISOs, 3 - Load-serving Entities, 5 - Electric Generators, 4 - Transmission-dependent Utilities, 1 - Transmission Owners, 7 - Large Electricity End Users, 8 - Small End Users, 9 - Federal, State, Provincial Regulatory, or	

Individual or group.	Name	Organization	Registered Ballot body segment (check all industry segments in which your company is registered)	
			other Government Entities	
29. Individual	CJ Ingersoll	CECD	3 - Load-serving Entities	
30. Group	Patrick Brown	PJM Interconnection, LLC	2 - RTOs and ISOs	
31. Individual	Mike Pfeister	Salt River Project	3 - Load-serving Entities, 5 - Electric Generators, 1 - Transmission Owners	
32. Individual	Lauri Jones	Pacific Gas and Electric Company	1 - Transmission Owners	
33. Individual	Alice Druffel	Xcel Energy	1 - Transmission Owners, 3 - Load-serving Entities, 6 - Electricity Brokers, Aggregators , 5 - Electric Generators	
34. Group	Joseph DePoorter	MRO NERC Standards Review Subcommittee	3 - Load-serving Entities, 4 - Transmission-dependent Utilities, 5 - Electric Generators, 6 - Electricity Brokers, Aggregators	
35. Individual	William J. Smith	Allegheny Power	1 - Transmission Owners	
36. Group	Phil Riley	Public Service Commission of South Carolina	9 - Federal, State, Provincial Regulatory, or other Government Entities	
37. Group	Lauri Jones	WECC Operations Training Subcommittee	1 - Transmission Owners	
38. Individual	Kathleen Goodman	ISO New England Inc.	2 - RTOs and ISOs	
39. Group	Will Franklin	Entergy Services, Inc. System Planning & Operations (Generation & Marketing)	6 - Electricity Brokers, Aggregators	
40. Individual	Thad Ness	AEP	3 - Load-serving Entities, 1 - Transmission Owners, 5 - Electric Generators, 6 - Electricity Brokers, Aggregators	
41. Individual	H. Vann Weldon	ERCOT Inc.	2 - RTOs and ISOs	
42. Individual	Howard Rulf	We Energies	3 - Load-serving Entities, 5 - Electric Generators, 4 - Transmission-dependent Utilities	
43. Group	Terry L. Blackwell	Santee Cooper	1 - Transmission Owners	
44. Individual	Thomas Fung	BCTC	2 - RTOs and ISOs	

Consideration of Comments on 3rd Draft of System Personnel Training Standard

Individual or group.	Name	Organization	Registered Ballot body segment (check all industry segments in which your company is registered)	
45. Group	Richard Kafka	Pepco Holdings, Inc. - Affiliates	1 - Transmission Owners	**Additional Member** / **Additional Organization** / **Region** / **Segment Selection** 1. Valerie Hildebrand / PEPCO / RFC / 1 2. Bryan Clark / Delmarva Power & Light / RFC / 1
46. Group	Ed Carmen	Baltimore Gas & Electric	1 - Transmission Owners	
47. Individual	Gregory Campoli	New York Independent System Operator	2 - RTOs and ISOs	
48. Group	Sam Ciccone	FirstEnergy	1 - Transmission Owners, 6 - Electricity Brokers, Aggregators , 5 - Electric Generators, 3 - Load-serving Entities	**Additional Member** / **Additional Organization** / **Region** / **Segment Selection** 1. Jim Eckels / FirstEnergy / RFC / 1,3,5,6 2. John Reed / FirstEnergy / RFC / 1,3,5,6 3. Larry Hartley / FirstEnergy / RFC / 1,3,5,6 4. Hugh Bulloci / FirstEnergy / RFC / 1,3,5,6 5. Eugene Blick / FirstEnergy / RFC / 1,3,5,6 6. Dave Folk / FirstEnergy / RFC / 1,3,5,6 7. Doug Hohlbaugh / FirstEnergy / RFC / 1,3,5,6
49. Individual	Greg Rowland	Duke Energy Corporation	6 - Electricity Brokers, Aggregators , 3 - Load-serving Entities, 5 - Electric Generators, 1 - Transmission Owners	
50. Individual	Ron Falsetti	Ontario IESO	2 - RTOs and ISOs	
51. Group	Jason Marshall	Midwest ISO Stakeholder Collaborators	2 - RTOs and ISOs	**Additional Member** / **Additional Organization** / **Region** / **Segment Selection** 1. Jeanne Kurzynowski / Consumers Energy / RFC / 3,4,5 2. Joe Knight / GRE / MRO / 1

1. **FERC Order 693 directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology in its development of new training programs". The SPT SDT revised R1 to identify the essential components of a systematic approach to training. Do you agree that this requirement now clearly describes the minimal components that must be included in a systematic approach to training? If not, please explain in the comment area.**

Summary Consideration:

The majority of the commenters agreed that the requirement describes the minimal components that must be used in a systematic approach to training. However, several of the commenters did not agree with listing some of the components of a systematic approach to training as sub-requirements stating that it was unnecessary. A few of the commenters also thought that the Standard was prescribing the use of a specific method of the systematic approach to training.

The sub-requirements in Requirement 1 are simply listing common elements that are in every systematic approach to training process. The task list should be used to identify the necessary training as stated in Requirement 1 and that a systematic approach to training is then used to develop the associated training for each task. While the SAT process may be familiar to many entities, the comments received during the development of this standard indicate that many entities have little or no familiarity with the SAT process.

The following reference documents could be used in applying a systematic approach to training - these documents are listed in the Reference Document for this Standard.

(1) DOE-HDBK-1078-94, A Systematic Approach to Training
http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf

(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910
http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html

(3) ADDIE – 1975, Florida State University
http://www.nwlink.com/~donclark/history_isd/addie.html

(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96
http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf

The Standard does not prescribe the use of a certain methodology in applying a systematic approach to training - the above mentioned references provide different examples of a systematic approach to training.

Organization	Question 1:	Question 1 Comments:
E.ON U.S.	No	E.ON U.S. generally supports the intent of the PER-005 standard, but it does not believe that following the Systematic Approach to Training as defined in the DOE document is appropriate in all instances. The DOE reference document is geared for training programs that relate to nuclear power operators which require a virtually fail safe redundancy. While E.ON U.S. acknowledges that formal operator training is essential for the safe and reliable operation of the electricity system, it is concerned that any incremental reliability gains derived from implementing the SAT document may not be worth

Organization	Question 1:	Question 1 Comments:
		the substantial cost for companies and their customers. E.ON U.S. believes that utilities should have the ability to outline and tailor their training programs to reflect the unique characteristics of their systems and the unique circumstances that each operator is likely to confront in the operation of the system. Many parties already have developed and will continue to conduct extensive and highly effective training of their operations staff. Absent some demonstration of substantial incremental benefit, a standard requiring utilities to start from scratch with a formal SAT process will be unjustifiably burdensome, distracting, and require a complete reallocation of already limited resources, all to the potential detriment of continued safe and reliable operations. E.ON U.S., as well as many other parties, currently train their system operators through many processes. For E.ON U.S., all new hires are required to complete a structured training program that covers all areas of operations during normal and emergency system conditions. This training is in the form of structured classroom and/or NERC certified vendor training plus direct instruction from supervisory operators through the use of actual control room equipment and, where appropriate, simulators. No operator is allowed to independently work until the supervisory personnel has certified that training has been completed and the employee has satisfactorily demonstrated proficiency in all identified tasks through the successful completion of a rigorous testing program.. All existing operators that have been certified as being proficient at a journeyman level will receive annual refresher instruction and training, both through vendor and simulator training programs to, again, guarantee that operators have a mastery of all tasks required of them. E.ON U.S. believes, therefore, that its current training program, while not identical with the DOE SAT process, achieves the same goals and objectives of having well-trained and proficient system operators in place, and in maintaining a rigorous training regimen to keep those skills at the highest attainable levels. Such a program provides systematic, company specific training programs and processes that meet the requirements of PER-005. Companies should be able to demonstrate that their training programs are equal or superior to programs that are identified in the SAT process. Identification of critical tasks and training necessary to ensure that system operators possess the skills necessary to complete the task is utility specific. Employing a cookie cutter approach as identified by the SAT process seems to largely ignore utility differences. Existing training programs should not be overhauled by use of the SAT unless these programs prove to be deficient.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology". Requirement 1 requires that a systematic approach must be used to create new or revise existing training programs for reliability-related tasks. There are multiple variations of a systematic approach to training. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard. (1) DOE-HDBK-1078-94, A Systematic Approach to Training http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf (2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910 http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html (3) ADDIE – 1975, Florida State University http://www.nwlink.com/~donclark/history_isd/addie.html (4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96 http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf The NERC Certification Process or NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training,		

Organization	Question 1:	Question 1 Comments:
not just NERC CE approved activities. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific reliability-related tasks). The majority of training in this standard could meet CEH.		
MRO NERC Standards Review Subcommittee	No	A systematic approach to training is a clearly developed process used in many programs. Some entities may interpret this to refer to the DOE SAT methodology, which is incorrect. The MRO suggests wording to clarify R1: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall use asystematic approach to training as outlined in the sub-requirements below, to establish?" R1.1.1 states "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall update its list of BES company-specific reliability-related tasks" Replace 'update' with 'review and update as necessary'
Response: The present wording for Requirement 1 is "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a new or modify an existing training program(s) for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program(s)". There are multiple variations of a systematic approach to training. The following are reference documents that can be used in applying a systematic approach to training. These documents are also listed in the Reference Document for this Standard. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html **(3) ADDIE – 1975, Florida State University** http://www.nwlink.com/~donclark/history_isd/addie.html **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf The SPT SDT believes that in order to update a task list it first must be reviewed. Therefore the SPT SDT thanks you for your response but does not feel that a change in the wording is necessary.		
tampa electric company	No	The previous version of the standard did include, (analysis, design, development, implementation and evaluation) which are components of what at SAT should include. These have been removed and now it seems that "systematic approach" is an ambiguous term, unless creating the task list is what the SDT considers a systematic approach to training.
Response: There are multiple variations of a systematic approach to training. The sub-requirements simply list common elements that are in every systematic approach to training process. The task list is used to identify the necessary training as stated in R1. A systematic approach to training is used to develop the associated training for each task. The following are reference documents that can be used in applying a systematic approach to training. These documents are also listed in the Reference Document for this Standard. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC**		

Organization	Question 1:	Question 1 Comments:
6910 http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html **(3) ADDIE – 1975, Florida State University** http://www.nwlink.com/~donclark/history_isd/addie.html **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf		
ERCOT Inc.	No	R1 without the sub-requirements is sufficient to meet the FERC directive. The sub-requirements of R1 are not only unnecessary; as written they are detrimental.
Response: There are multiple variations of a systematic approach to training. The sub-requirements simply list common elements that are in every systematic approach to training process. While the SAT process may be familiar to many entities, the comments received during the development of this standard indicate that many entities have little or no familiarity with the SAT process.		
Ontario IESO	No	We would ask the SDT to clarify that the requirement to use a "systematic approach to training" does not dictate a specific type of training program, as long as requirements in R1.1 to R1.4 are fully met. As we have commented in the past, we believe standards should dictate what and not how. If this clarification is made, the IESO would support the standard. However, if the "systematic approach to training" indeed dictates the use of a specific type of training program, then we would request the SDT to demonstrate how it can be determined that a training program developed using other methods is not acceptable if the subrequirements R1.1 to R1.4 are fully met.
Response: There are multiple variations of a systematic approach to training and this standard is not prescribing the use of any specific SAT methodology. Each entity may select its own SAT methodology as long as it includes the elements identified in sub-requirements R1.1 to R1.4The sub-requirements simply list common elements that are in every systematic approach to training process. The task list is used to identify the necessary training as stated in R1. A systematic approach to training is used to develop the associated training for each task. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html **(3) ADDIE – 1975, Florida State University** http://www.nwlink.com/~donclark/history_isd/addie.html **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf		
SERC OC Standards Review Group (Project 2006-01)	No	We agree that R1 does identify the essential components of a Systematic Approach to Training (SAT). However, we found the statement that SAT must be used "to establish a new or modify an existing training program(s)" to be ambiguous. Clearly, if a company creates a new course or undertakes a modification to an existing course, then SAT must be followed. But does this statement require that ALL existing training programs (whether modifications are planned or not) be adjusted

Organization	Question 1:	Question 1 Comments:
		to be consistent with SAT? R1 needs to be reworded to eliminate this ambiguity. Furthermore, the development of reliability-related system operator tasks is a crucial starting point for the SAT process. R1 requires that these tasks be company-specific and related to the Bulk Electric System (BES). However, BES still has not been adequately defined to a level that would provide direction to companies for developing their own reliability-related tasks. A major point of confusion is the discrepancy between BES (NERC terminology) and the FERC terminology (Bulk Power System? BPS) as described in the Energy Policy Act of 2005. BPS has a much broader and inclusive definition, which makes it extremely difficult for an entity to determine if its training program meets the R1 requirement. We suggest the inclusion of an Appendix in this standard that formally defines the SAT/ADDIE process. While R1.1? R1.4 does allude to the basic elements of the process; this may not be obvious to those without a background in training. The Appendix would clearly describe each step required by the systematic approach to training, and bring everyone who must comply with this standard to a basic level of understanding.
Response: The intent of the Standard is to require all entities to use a systematic approach to training for either new or existing training programs. The effective date of this standard allows time to modify existing or implement new training programs. Requirement 1 has been modified to provide clarity and now reads: R1 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. The defining of the term Bulk Electric System (BES) is outside the scope of this Drafting Team. The definition is found in the NERC Glossary and is defined by each individual Region. The requirement in this standard references BES, not BPS, so there should be no confusion. There are multiple variations of a systematic approach to training. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html **(3) ADDIE – 1975, Florida State University** http://www.nwlink.com/~donclark/history_isd/addie.html **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf		
California ISO	No	Stating that the FERC mandated SAT methodology must be used is sufficient. The SAT methodology already includes the components listed in the sub-requirements. We suggest eliminating all the sub-requirements to R1.With R1 modified to eliminate the sub-requirements, we recommend re-writing R2 as shown below. R2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each of its System Operator's capabilities to perform reliability-related tasks at least one time. [Risk Factor: High] [Time Horizon: Long-term Planning]

Organization	Question 1:	Question 1 Comments:
		We suggest that R2.1 be modified to allow extra time for employees who were absent from work and were unable to be trained within the six month time frame. R2.1. Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks. The six-month time frame is applicable only to those employees who were not absent from work and who were able to attend the formal training sessions. An additional six months for evaluating System Operator's capabilities shall be granted for employees who were unable to attend formal training due to absence from work.
Response: There are multiple variations of a systematic approach to training. The sub-requirements simply list common elements that are in every systematic approach to training process. While the SAT process may be familiar to many entities, the comments received during the development of this standard indicate that many entities have little or no familiarity with the SAT process. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html **(3) ADDIE – 1975, Florida State University** http://www.nwlink.com/~donclark/history_isd/addie.html **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf The Standard Drafting Team recognizes that hardship circumstances will arise. The SDT feels that these instances will be addressed on a case- by-case basis by the Compliance Monitoring Enforcement Program (CMEP). It is not feasible that a Standard could address every possible situation.		
FRCC	No	Although FERC required the SAT methodology in Order 693, it was not defined. The previous version of the standard did include, (analysis, design, development, implementation and evaluation) components of what at SAT should include. These have been removed and now it seems that "systematic approach" is an ambiguous term. The requirement states that the RC, BA and TOP shall "use" a systematic approach. Are the requirements 1.1, 1.1.1, 1.2, 1.3 and 1.4 the components of such an approach? If so, why not delete the term and just have the requirements which cover each of the components?
Response: There are multiple variations of a systematic approach to training. The sub-requirements simply list common elements that are in every systematic approach to training process. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard. While the SAT process may be familiar to many entities, the comments received during the development of this standard indicate that many entities have little or no familiarity with the SAT process. Keeping the reference to the SAT process in R1 provides greater clarity to the intent of the requirement, so it was retained.		

Organization	Question 1:	Question 1 Comments:
(1) DOE-HDBK-1078-94, A Systematic Approach to Training http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html **(3) ADDIE – 1975, Florida State University** http://www.nwlink.com/~donclark/history_isd/addie.html **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf		
NPCC Regional Standards Committee	No	NPCC participating members wish to thank the drafting team for accepting our comment related to the SAT from the last posting--"We continue to disagree that using a Systematic Approach to Training to develop a training program is a reliability requirement. Reliability standards need to address the "what", not the how, despite the FERC Order." The lower case acronym that now appears in the standard seems to have alleviated some of the concern with some of the NPCC RSC members. However we request the drafting team further clarify the standard to ensure that the requirement to use a "systematic approach to training" does not dictate a specific type of training program, such as the 5 principles in the SAT, as long as requirements in R1.1 to R1.4 are fully met. In fact, R1 should simply be stipulated as: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall establish a new or modify an existing training program(s) for the BES company-specific reliability-related tasks performed by its System Operators."
Response: There are multiple variations of a systematic approach to training. The sub-requirements simply list common elements that are in every systematic approach to training process. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard. Keeping the reference to the SAT process in R1 provides greater clarity to the intent of the requirement, so it was retained. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html **(3) ADDIE – 1975, Florida State University** http://www.nwlink.com/~donclark/history_isd/addie.html **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf		
PJM Interconnection, LLC	No	R1 without the sub-requirements is sufficient to meet the FERC directive. The sub-requirements go outside the scope of the standard and merely describe some elements of the SAT methodology itself. The SAT methodology is a well established, widely used training standard in the industry which does not need to be described in detail in the NERC Standards.

Organization	Question 1:	Question 1 Comments:
Response: There are multiple variations of a systematic approach to training. The sub-requirements simply list common elements that are in every systematic approach to training process. The task list is used to identify the necessary training as stated in R1. A systematic approach to training is used to develop the associated training for each task. While the SAT process may be used by many entities, the comments received during the development of this standard indicate that there are many entities that have little or no familiarity with the SAT process. The drafting team added a list of references that provide guidance in applying the SAT process to the standard.		
FirstEnergy	No	Although we agree that the minimum training needs of personnel are identified, we have the following concerns/suggestions: 1. The standard does not require minimum training needs for the trainer. Adding a subrequirement to assure the trainer is adequately trained will support the BES reliability through the assurance that training personnel will have the knowledge and skills they need and will add to the quality of the training delivered. Even though this is considered to be outside the scope of the SAR, adding a requirement to "train the trainer" will demonstrate the importance of flexibility in NERC's standard development process that does not always exist today. While we understand that SDT's should not be given complete freedom to significantly diverge from the SAR scope, there needs to be some flexibility for teams to adjust the scope based on industry feedback. In the end, all new or revised standard requirements are voted on regardless of the exact SAR scope. We believe the SDT teams should not be rigidly bound by the SAR scope, but rather have enough flexibility to adjust based on subsequent direction from FERC on other standards projects or valid input, agreed upon by the SDT, that is received from industry during the development of the standard although not explicitly stated in the original SAR scope. Our suggested change to "train the trainer" has precedence from direction received from FERC based on its Order 706 regarding the CIP standards. Please refer to paragraph 435 of Order 706.2. We feel that R1.4 may need to be expanded. Per R1.4, an evaluation of the training program is required; however, it does not specify what to do with the results of such evaluations. We suggest revising R1.4 and adding the following subrequirements: R1.4. The Reliability Coordinator, Balancing Authority, and Transmission Operator shall conduct an evaluation of the training program established in R1. R1.4.1. The Reliability Coordinator, Balancing Authority, and Transmission Operator shall annually review the evaluations of their delivered training to identify needed changes to their training program.R1.4.2. The Reliability Coordinator, Balancing Authority, and Transmission Operator shall implement the training program changes identified in R1.4.1 within 12 months of that review.
Response: The majority of commenter's from previous postings did not agree that a requirement should be included in the standard that necessitates entities to verify that personnel developing or delivering training to System Operators are competent. Since this requirement was outside the scope of the SAR, the SPT SDT removed this requirement from the standard. With regards to your comment that the SDT should not "be rigidly bound by the SAR scope" is beyond the purview of the SDT process. This should be brought up to the Standards Committee for future consideration and possible modification to the standards development process. The intent of R1.4 was that when the need for a change to the training program was identified, the change would be made. The SDT added clarifying language to R1.4 which now reads "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of the training program established in R1 to identify any needed changes to the training program and shall implement the changes identified".		
PSEI	No	Since the new wording includes "BES company-specific reliability-related tasks" we have now bought into regional differences as each region is responsible to decide their definition of BES. They have done this in a FERC filing (Docket No. RM06-16-000). What if a company does not have any tasks that are BES related as defined by their region? Will an auditor accept that it does not apply and therefore the entity does not need a training program? Requiring an administrative burdensome process for all training does not help smaller companies. They lack staff. Perhaps the training standard should only apply to those companies that are CEH providers. System Operators are already required to obtain and maintain certification. Let companies decide the skill level of their operators without an administrative nightmare.

Organization	Question 1:	Question 1 Comments:
Response: As stated previously in our response to comments dated August 15, 2007 only specific tasks that are considered critical to reliability should be considered when developing a task list. The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard details some topics that could be considered and included in a task list. The philosophy used to develop this Standard is based on the industry need from the industry approved SAR. The NERC Certification Process or NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific reliability-related tasks). The majority of training in this standard could meet CEH.		
Duke Energy Corporation	No	We have significant concerns with the current draft of PER-005-1. While the concept of a systematic approach to training? Is valid, the implementation of the concept as envisioned in the current draft cannot be accomplished with the precision and clarity necessary for a mandatory reliability standard. A process-driven approach like the systematic approach to training is better handled outside of reliability standards. We need specific requirements that are clear and consistently enforceable in the standards. The critical first step of the ?systematic approach to training as stated in Requirement R1.1, is to create a list of Bulk Electric System (BES) company-specific reliability-related tasks performed by its System Operators. The previous draft of PER-005-1 listed literally hundreds of tasks. The development of a company-specific list is a subjective endeavor. It is highly likely that auditors would consistently disagree with the composition of any responsibility entity's list, and hence find them in violation of a medium risk factor requirement. Ambiguous requirements have no place in a mandatory reliability standard. A better approach would be to capture in this standard the continuing education requirements and categories by type of NERC certification. Operators should be required to pass the appropriate NERC certification examination, and maintain that certification with NERC-approved continuing education training hours. For example the current requirement is 200 hours over a three-year period for Reliability Coordinators. The initial letter from Mark Fidrych stating the company requirement for the five-days of emergency operations training, established in PER-002 R4 and further defined as 32 hours currently identified in R3 of PER-005-1 should be put into the standard and counted toward the system operator certification training requirements as a third category of hours along with Simulation and Standards to maintain certification. Why have a completely separate set of training requirements not part of the continuing education process? It makes for separate record keeping and confusion. With the consolidation of the PER-002, 003 and 004 into PER-005, it makes further sense to consolidate the emergency hour's requirement into the credential maintenance program.
Response: The philosophy used to develop this Standard is based on the industry need from the industry approved SAR. As stated previously in our response to comments dated August 15, 2007 only specific tasks that are considered critical to reliability should be considered when developing a task list. The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard details some topics that could be considered and included in a task list. The NERC Certification Process or NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific reliability-related tasks). The majority of training in this standard could meet CEH.		
LCRA	No	The requirement requires transmission operators to create a list of company specific reliability related tasks. What are they exactly? That's a very subjective term. Who decides? If the transmission operator training staff decides what will be critical,

Organization	Question 1:	Question 1 Comments:
		and thus what they will be audited on, then it behooves them to keep that list as short as possible. The fewer tasks on the list, the less one is responsible for. I do agree that the systematic approach is the best way to go, but not when you are attempting to tie it to a task list that is completely subjective. That makes no sense whatsoever.
Response: As stated previously in our response to comments dated August 15, 2007 only specific tasks that are considered critical to reliability should be considered when developing a task list. The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard has been revised and now details some topics that could be considered and included in a task list.		
BCTC	No	The concept for Systematic Approach to Training is understood but it is not clear what the BES company-specific reliability-related tasks performed by System Operators would be. This would be too open to interpretation by an audit team.
Response: As stated previously in our response to comments dated August 15, 2007 only specific tasks that are considered critical to reliability should be considered when developing a task list. The number of tasks identified by each entity will vary depending upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard has been revised and now details some topics that could be considered and included in a task list. The defining of the term BES is outside the scope of this Drafting Team. The definition is found in the NERC Glossary and is defined by each individual Region.		
SERC System Operator Subcommittee (SOS) of the SERC Operating Committee	No	We agree that R1 does identify the essential components of a Systematic Approach to Training (SAT). However, we found the statement that SAT must be used "to establish a new or modify an existing training program(s)" to be ambiguous. Clearly, if a company creates a new course or undertakes a modification to an existing course, then SAT must be followed. But does this statement require that ALL existing training programs (whether modifications are planned or not) be adjusted to be consistent with SAT? R1 needs to be reworded to eliminate this ambiguity. Furthermore, the development of reliability-related system operator tasks is a crucial starting point for the SAT process. R1 requires that these tasks be company-specific and related to the Bulk Electric System (BES). However, BES still has not been adequately defined to a level that would provide direction to companies for developing their own reliability-related tasks.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology". The intent of the Standard is to require all entities to utilize a systematic approach to training for either new or existing training programs. The effective date of this standard allows time to modify existing or implement new training programs. Requirement 1 has been modified to provide clarity and now reads: R1 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. The defining of the term Bulk Electric System (BES) is outside the scope of this Drafting Team. The definition is found in the NERC Glossary and is defined by each individual Region.		
Santee Cooper	No	R1 states "? Shall use a systematic approach to training to establish a new or modify an existing training program(s)". Does this imply that all previous training is to be modified to fit SAT? A training module should only need to be modified to fit the SAT process if it is used again after this standard is approved. All past training that is not used after this standard is approved should not have to be modified. See below for recommended wording. We agree that R1 describes the minimal components that should be included in a training program. Recommend including as an attachment to the standard the System Operator Training Reference Document. We recommend removing the words "BES company-specific" to avoid confusion. R1 would read simpler as "Each RC, BA, and TOP shall use a systematic approach to training to establish a new

Organization	Question 1:	Question 1 Comments:
		training program for reliability-related tasks performed by its System Operators. Existing programs that do not follow the SAT model should ensure future training conforms to the SAT process."
Response: The SDT agrees that this Standard only applies to active training related to the task lists as defined by R1.1. The intent of the Standard is to require all entities to use a systematic approach to training for developing new or modifying existing training programs. The effective date of this standard allows time to modify existing or implement new training programs. The philosophy used to develop this Standard is based on the industry need from the industry approved SAR.		
Ohio Valley Electric Corporation	No	R1.2 & R1.3 could be interpreted to exclude the use of contractors for designing and developing learning objectives and training materials. R1.2 & R1.3 should be revised so as not to imply that outside contractors could not be used. The evaluation of training stated in R1.4 is a good statement and good training practice. However, there has been no assessment or evaluation of the effectiveness existing training programs required by PER-002, R3 that has been in affect for over three years. Why create a standard to mandate a new training program when no assessment has been made of the effectiveness of existing training programs? The work to create a new training standard is not a judicious use of resources in order to strengthen the reliability of the bulk electric system. FERC, with its Order, is trying to direct the outcome of the stakeholder process without participating in the same process that the stakeholders must use. The standards development process loses its integrity if the outcome is directed or predetermined and stakeholder input is not considered.
Response: - The SPT SDT does not believe that the Standard, as written, precludes the use of contractors for training purposes. A contractor hired to perform these activities performs under the auspices of the entity that hires them. The philosophy used to develop this Standard is based on the industry need from the industry approved SAR.		
Gainesville Regional Utilities	No	FERC and NERC describing in detail How training is accomplished and documented seem to be taking things to an extreme that is not necessary.
Response: The philosophy used to develop this Standard is based on the industry need from the industry approved SAR.		
Hydro One Networks - Reliability Standards Group	No	(do not wish to specify Yes or NO for this question)R1.4 needs a time frame in which each entity must conduct an evaluation of their training program.
Response: The SPT SDT acknowledges your response and has added a time frame for evaluation of a training program. R1.4 now reads “Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of the training program established in R1 to identify any needed changes to the training program and shall implement the changes identified. ”		
CAISO	No	This is a general comment regarding PER-005. The following statement from R2 has a typo error. I believe the word "or" should have been "of”. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each or its System Operator’s capabilities to perform each assigned task identified in R1.1 at least one time.
Response: The SPT SDT acknowledges your response and thanks you for your clarifying comment. The typographical error has been corrected.		
Pepco Holdings, Inc. - Affiliates	No	Change the wording in R1 to emphasize the training program before establishing the method of development. For example --Each RC, BA and TOP shall establish a new or modify an existing training program using a systematic approach etc. The change in emphasis would make it easier to state VSLs as shown in 4 below.
Response: The SDT acknowledges your response and thanks you for your comment but feels that the present wording provides for sufficient clarity.		
Niagara Mohawk (DBA National Grid)	Yes	The lower case acronym that now appears in the standard seems to have alleviated some of our concerns. However we request the drafting team further clarify the standard to ensure that the requirement to use a "systematic approach to training" does not dictate a specific type of training program, such as the 5 principles in the SAT, as long as requirements in R1.1 to R1.4 are fully met. In fact, R1 should simply be stipulated as: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall establish a new or modify an existing training program(s) for the BES company-specific

Organization	Question 1:	Question 1 Comments:
		reliability-related tasks performed by its System Operators" since R1.1 thru 1.4 describe the training development "process".
Response: There are multiple variations of a systematic approach to training. The sub-requirements simply list common elements that are in every systematic approach to training process. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard. Keeping the reference to the SAT process in R1 provides greater clarity to the intent of the requirement, so it was retained. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html **(3) ADDIE – 1975, Florida State University** http://www.nwlink.com/~donclark/history_isd/addie.html **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf		
Entergy Services, Inc. System Planning & Operations (Generation & Marketing)	Yes	We agree that the description for the SAT methodology clearly describes the minimal components required. We do have concern with the use of the term "company specific". Does this infer that each company has a composite listing or can each function (business unit) within a company maintain their own listing?
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment. The Standard is not intended to specify how an entity develops the company specific task lists. Whatever is logical and fits the organizational structure that is justifiable should be sufficient. Only specific tasks that are considered critical to reliability should be considered when developing a task list. The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard has been revised and now details some topics that could be considered and included in a task list.		
Northeast Utilities	Yes	R1 describes the SAT process (Analysis, Design, Develop, Implement, and Evaluate) well. What guidance determines "BES company-specific reliability-related tasks"?
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment. Only specific tasks that are considered critical to reliability should be considered when developing a task list. The Reference Document associated with the Standard details some topics that could be considered and included in a task list.		
Grant County PUD	Yes	The revised Requirement R1 does identify a minimum subset of the components of the Systematic Approach to Training with out actually naming them. Analysis, Design, Development, Implementation and Evaluation. These elements are very well understood in other industries such as nuclear power and have been in use for many years. It's not clear why you would choose not to simply use the existing model and not try to reinvent the wheel? It's also notable that the previous version had reference to a "Generic Task List" which could prove very useful and informative for those who are struggling with the analysis phase of SAT. This reference to the GTL was struck out in the new redline of the standard. This is unfortunate because entities with little expertise in SAT will have to start from scratch with their job/task analysis instead of having a point of departure for design and development. This is not to encourage wholesale use of a generic task list but

Organization	Question 1:	Question 1 Comments:
		perhaps the availability of a generic task list and guidance to customize it for use on an entity specific basis would provide a smoother transition to the Systematic Approach.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment. Only specific tasks that are considered critical to reliability should be considered when developing a task list. The Reference Document associated with the Standard has been revised and now details some topics that could be considered and included in a task list.		
Manitoba Hydro	Yes	Manitoba Hydro agrees that a Systematic Approach to training be used in developing new training programs.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment.		
American Transmission Company	Yes	In general we agree with the approach described.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment.		
firstenergy	Yes	
Bonneville Power Administration	Yes	
Operating Reliability Working Group (ORWG)	Yes	
Sacramento Municipal Utility District	Yes	
MidAmerican Energy Company	Yes	
Cowlitz County PUD No. 1	Yes	
Arizona Public Service Company	Yes	
The Detroit Edison Company	Yes	
WECC Reliability Coordination Comments Work Group (RCCWG)	Yes	
Southwest Power Pool - Operations Training Working Group	Yes	
CECD	Yes	
Salt River Project	Yes	
Pacific Gas and Electric Company	Yes	
Xcel Energy	Yes	

Consideration of Comments on 3rd Draft of System Personnel Training Standard

Organization	Question 1:	Question 1 Comments:
Allegheny Power	Yes	
Public Service Commission of South Carolina	Yes	
WECC Operations Training Subcommittee	Yes	
ISO New England Inc.	Yes	
AEP	Yes	
We Energies	Yes	
Baltimore Gas & Electric	Yes	
New York Independent System Operator	Yes	
Midwest ISO Stakeholder Collaborators	Yes	In general, we agree that R1 describes the components that must be included in a systematic approach to training. However, we do believe the requirement could be improved further by adding the following clause after the word training in the second line of R1.as outlined below
Response: There was insufficient information in your comment for the SPT SDT to address.		

2. The SPT SDT revised R3 to identify the training requirements and the various techniques/tools that can be utilized to conduct the training. In utilizing a systematic approach to training as described in R1, would you agree that the task list developed in R1.1 would be utilized to conduct the training required in R3? If not, please explain in the comment area.

Summary Consideration:

The majority of the responders agreed that the task list developed in Requirement 1 could be used in the development of the training identified in Requirement 3. In those instances of disagreement, the majority questioned the use of simulators and the definition of what 12 month period was to be used. Also, there appeared to be confusion concerning the task list developed in Requirement 1 being all inclusive for the emergency operations training.

The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read:

R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel.

R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

The SPT SDT did not intend to define the 12 month period for providing emergency operations training. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from “annually” to “every 12 months” to allow for the situation of new hires late in the calendar year. This revision was incorporated into Draft 4 of the Standard.

Concerning the confusion associated with the task list developed in Requirement 1 being all inclusive for the emergency operations training, the SPT SDT did not intend to limit the emergency operations training to only tasks identified in Requirement 1. The SPT SDT believes that the tasks identified in Requirement 1 could be used as a starting point for development of the emergency operations training. Several commenters referenced a list of emergency operations training topics issued by the Operating Committee Chair (Mr. Fidrych) in March, 2004 – the SPT SDT added this list of emergency operations training topics that could be included in the training to the revised Reference Document associated with this Standard.

Organization	Question 2:	Question 2 Comments:
SERC OC Standards Review Group (Project 2006-01)	No	As stated in the response to Question 1, we are uncomfortable with the R1 requirement to create reliability-related tasks for the operation of the Bulk Electric System. The information needed to effectively develop the subset of tasks related to emergency operations is insufficient. Clarify what the twelve months - is it an annual basis or a rolling 12 month = a calendar year vs. a credential year. In addition, we feel that the phrase in R3: At least every 12 months...? Is open to different interpretations. Must each system operator be provided with 32 hours of emergency training within every calendar year or

Organization	Question 2:	Question 2 Comments:
		within every credential year?R3 further implies by the phrase applicable to its organization that only system-specific training can be used for the 32-hour annual emergency training requirement. This wording needs to be changed to make it clear that, while system-specific training is needed, generic training on emergency operations is also allowed in the 32 hours. We also suggest that, in R3, the phrase and hands on training using simulators be changed to and/or hands on training using simulators to clarify that use of a simulator is not required for all training, drills or exercises (for example, table-top drills are allowed as well).
Response: It was not the intent of the SPT SDT to limit the emergency operations training to only tasks identified in Requirement 1. The SPT SDT believes that the tasks identified in Requirement 1 could be used as a starting point for development of the emergency operations training. Additional training topics that could be included in the training can be found in the revised Reference Document associated with this Standard. The SPT SDT did not intend to define the 12 month period for providing emergency operations training. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from "annually" to "every 12 months" to allow for the situation of new hires late in the calendar year. This revision was incorporated into Draft 3 of the Standard. The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee – to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions."		
Ohio Valley Electric Corporation	No	Emergency operations training should not be limited to the task list developed in R1. Many emergency operations topics are related to concepts and not tasks. R1 can be used to identify some emergency operations training topics but will not cover all the topics that could qualify as emergency operations training. There is insistence by FERC that the use of simulators be explicitly required and that the requirements be applicable to local control center personnel. FERC offers no justification as to why this is necessary but it is also not immune from its requirement to engage in reasoned decision-making and provide justification. The required use of simulators creates undue hardship for many smaller entities, especially those with limited staffing. The purchase, operation, and model maintenance of a simulator is not an inexpensive proposition. Additional staffing for this purpose will be required. Likewise, there will be a considerable expenditure for training resources, either internal or external. FERC however did state that smaller entities that have no impact on the BES should not be required to have simulators, but no definition of small entity has been offered. Suggest removing the "hands on training using simulators" wording from R3.PER-002 R4 currently defines emergency operations training clearly and is well understood and successfully implemented by the entities required to provide this training. PER-005 R3 should be revised to the existing wording found in PER-002 R4.
Response: It was not the intent of the SPT SDT to limit the emergency operations training to only tasks identified in Requirement 1. The SPT SDT believes that		

Organization	Question 2:	Question 2 Comments:
the tasks identified in Requirement 1 could be used as a starting point for development of the emergency operations training. Additional training topics that could be included in the training can be found in the revised Reference Document associated with this Standard. The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee – to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.		
Gainesville Regional Utilities	No	Not necessary
Response: The 32 hours of emergency operations training is presently identified and required in NERC approved standards. The training of System Operators was a major contributor to the 2003 blackout.		
tampa electric company	No	I feel should be reworded to state "using training, drills, exercises, and hands on training using simulations" instead of simulators as many smaller and larger companies do not have the staff or resources to support simulators. Also, R3 does not address a new hire that starts mid year or a trainee who is released late in the year. Do these individuals have the same 32hr requirement even though they do not have a year to complete it?
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee – to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. The SPT SDT revised the condition for Requirement 3 from “annually” to “every 12 months” to allow for the situation of new hires late in the calendar year. This revision was incorporated into Draft 4 of the Standard.		
Santee Cooper	No	R3 reads" using training, drills, exercises, and hands on training using simulators". Santee Cooper agrees with R3 if the

Organization	Question 2:	Question 2 Comments:
		"and" is changed to "or". As it is currently written it could be misconstrued to mean that simulators have to be used for all 32 hours. In addition, Santee Cooper is concerned that a company's interpretation of what is considered emergency operations training could be questioned by an auditor without some further clarification of topics that can be included in emergency operations training (Fidrych letter). We also ask the SDT to clarify "at least every 12 months". Is this on an annual basis as currently defined in PER002? It could be rewritten to read "On a per year basis each RC, BA, and TOP shall provide?"
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee – to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. The SPT SDT did not intend to define the 12 month period for providing emergency operations training. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from “annually” to “every 12 months” to allow for the situation of new hires late in the calendar year. This revision was incorporated into Draft 4 of the Standard. The drafting team has included the topics from the Fidrych letter to the Reference Document for this standard.		
Midwest ISO Stakeholder Collaborators	No	We agree that the company's list of reliability-related tasks from R1.1 will include tasks related to emergency operations which will certainly facilitate identifying the training required for R3. As R3 is currently written, however, R3 creates the potential for small registered entities to expend significantly more funds for emergency operations training than they will realize in actual value. This is directly due to the requirement to include hands on training using simulators. In Order 693, FERC even recognized that smaller registered entities that have little impact on the BES should not be required to have a simulator or simulator training. FERC stated that the requirement to have a simulator or simulator training should consider the entities role and size. If the word simulator was changed to simulations or the word or was used instead of and in the list, the requirement would satisfy the consideration FERC gave these small entities in Order 693.
Response: It was not the intent of the SPT SDT to limit the emergency operations training to only tasks identified in Requirement 1. The SPT SDT believes that the tasks identified in Requirement 1 could be used as a starting point for development of the emergency operations training. Additional training topics that could be included in the training can be found in the revised Reference Document associated with this Standard. All of the forms of training listed in Requirement 3 do not have to be used for every class. However, dependent on the entities system characteristics, the use of simulators must be included within the 32 hours as defined below. The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee – to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement		

Organization	Question 2:	Question 2 Comments:
3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.		
PJM Interconnection, LLC	No	No list is required, as we recommended the elimination of the sub-requirements in R1. In addition, the type of training mandated is too definitive. The standard should read, "using a combination of training, drills, exercises, or training simulators." This allows the registered entity to structure a program based on their specific needs and resources.
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee – to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 "Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.		
Xcel Energy	No	We recommend that the wording of R3 be slightly modified to clarify that entities may use any of the training methods listed, and not necessarily required to use ALL of them. Here is how we suggest it should read: R3. At least every 12 months each Reliability Coordinator, Balancing Authority, and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics (which includes system restoration)using any of the following methods: training, drills, exercises, and hands on training using simulators.
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee – to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with		

Organization	Question 2:	Question 2 Comments:
established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.		
Duke Energy Corporation	No	See response to question #1 above. Also on R3, the phrase "using training, drills, exercises and hands-on training using simulators" should be changed to "using training, drills, table-top exercises or hands-on training using simulators". This change recognizes that training may be accomplished using one or more of these methods, and that hands-on training using simulators is not required for all entities (FERC Order No. 693, paragraphs 1390 - 1393).
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - – to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation.. The SPT SDT modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.		
California ISO	No	We've recommended that the sub-requirements for R1 be eliminated. We believe R3 should be modified to allow any combination of "training, drills, exercises, and hands on training using simulators" instead of mandating that all must be used.
Response: The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 “Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.		
BCTC	No	The Standard now states that at least 32 hours annually of emergency operations training applicable to its organization. The way this is written suggests that emergency operations training is now limited to only company specific issues and that would disqualify much of the Emergency Operations training done with other organizations or contractors / vendors. If this interpretation is correct this would be very limiting and it would be difficult to get 32 hours accomplished. We suggest the original wording in PER-004 is sufficient and just change 5 days to 32 hours. It is not clear when a 12 month interval starts and stops for each System Operator as written in the Standard. Is this meant to allow each System Operator to have a different 12 month window so the measure could be tied to a Certification yearly window?
Response: It was not the intent of the SPT SDT to limit the emergency operations training to only tasks identified in Requirement 1. The SPT SDT believes that		

Organization	Question 2:	Question 2 Comments:
the tasks identified in Requirement 1 could be used as a starting point for development of the emergency operations training. Additional training topics that could be included in the training can be found in the revised Reference Document associated with this Standard. The SDT does not believe that the Standard, as written, precludes the use of contractors for training purposes. A contractor hired to perform these activities performs under the auspices of the entity who hires them. The philosophy used to develop this Standard is based on the industry need from the industry approved SAR. In addition, Requirement 3 has been modified and Requirement 3.1 has been added to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 “Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. The NERC Certification Process or NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific reliability-related tasks). As envisioned, much of the training developed and delivered in accordance with this standard could also be used to meet CEH. The SPT SDT did not intend to define the 12 month period for providing emergency operations training. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from “annually” to “every 12 months” to allow for the situation of new hires late in the calendar year. This revision was incorporated into Draft 3 of the Standard.		
PSEI	No	The new wording says "applicable to its organization". This just eliminated a lot of vendor training as it is generic. Small companies that do not have training staff rely on vendors to meet the current requirement. They also do not have the time and staff to specifically link a vendor's course to specific tasks. Emergency training can be and is valuable without burdening companies by requiring all to be company specific.
Response: It was not the intent of the SPT SDT to limit the emergency operations training to only tasks identified in Requirement 1. The SPT SDT believes that the tasks identified in Requirement 1 could be used as a starting point for development of the emergency operations training. Additional training topics that could be included in the training can be found in the revised Reference Document associated with this Standard. The SDT does not believe that the Standard, as written, precludes the use of contractors for training purposes. A contractor hired to perform these activities performs under the auspices of the entity who hires them. The philosophy used to develop this Standard is based on the industry need from the industry approved SAR In addition, Requirement 3 has been modified and Requirement 3.1 has been added to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel.		

Organization	Question 2:	Question 2 Comments:
R3.1 "Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.		
SERC System Operator Subcommittee (SOS) of the SERC Operating Committee	No	As stated in the response to Question 1, we are uncomfortable with the R1 requirement to create reliability-related tasks for the operation of the Bulk Electric System. The information needed to effectively develop the subset of tasks related to emergency operations is insufficient.
Response: It was not the intent of the SPT SDT to limit the emergency operations training to only tasks identified in Requirement 1. The SPT SDT believes that the tasks identified in Requirement 1 could be used as a starting point for development of the emergency operations training. Additional training topics that could be included in the training can be found in the revised Reference Document associated with this Standard.		
FRCC	No	The statement "using training, drills, exercises, and hands on training using simulators" is vague. What is meant by training since the items that follow it are forms of training? Does the responsible entity have to prove that all of these forms of training were used for every class, or just over the entire 32 hours. It appears that the only particular term identified for emergency operations training that is a "must" is system restoration. Is that correct? And if so, do all of the forms of training identified apply specifically to system restoration? This requirement needs to be clarified.
Response: The SPT SDT believes that what is meant by training is clarified by the items that were listed in the Requirement – note that the SPT SDT modified the phrase for clarity. All of the forms of training listed in Requirement 3 do not have to be used for every class. However, dependent on the entity's system characteristics, the use of simulators must be included within the 32 hours. The SPT SDT is not targeting just system restoration in Requirement 3. There are other topics that could be used but the training must include system restoration. System restoration training could utilize one or more of the methods identified in Requirement 3. Additionally, emergency operation training topics, that could be included, are listed in the revised Reference Document associated with this Standard.		
Hydro One Networks - Reliability Standards Group	No	Do not assume each company's list of tasks will include emergency operations and system restoration. Perhaps include these items in brackets in R1.1, and/or in requirement 3 refer to the list tasks in R1. Join R1 and R3 in someway other than assuming an entity/company will.
Response: It was not the intent of the SPT SDT to limit the emergency operations training to only tasks identified in Requirement 1. However, those tasks associated with emergency operations identified in Requirement 1 should be included. The SPT SDT believes that these tasks identified in Requirement 1 could be used as a starting point for development of the emergency operations training. Additional training topics that could be included in the training can be found in the revised Reference Document associated with this Standard.		
LCRA	No	The emergency training requirement should be removed from this standard and moved to certification/CE program. Right now CE requirements are tracked on a 36 month rolling calendar while the annual emergency training requirement is tracked on a 12 month annual calendar. You are confusing people and making it much more difficult to keep track of it all.
Response: The majority of the commenters in Draft 2 of this Standard supported including this requirement in the System Personnel Training standard. The SPT SDT revised the condition for Requirement 3 from "annually" to "every 12 months" to allow for the situation of new hires late in the calendar year. This revision was incorporated into Draft 4 of the Standard.		

Organization	Question 2:	Question 2 Comments:
WECC Operations Training Subcommittee	No	Training applicable to the organization should be removed, due to lack of clarity which may lead to multiple interpretations and multiple definitions of "applicable"
Response: The SPT SDT disagrees with your comment. The SPT SDT believes that by using the term applicable allows the individual entity to tailor the training to their specific organizational needs.		
CAISO	No	No comment
The Detroit Edison Company	Yes	We believe the use of "simulators" is too restrictive and "simulations" should be used instead. Simulations can occur without the use of simulators.
Response: The SDT SPT acknowledges your affirmative response and thanks you for your clarifying comment. The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 “Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.”		
Entergy Services, Inc. System Planning & Operations (Generation & Marketing)	Yes	We agree that the list of reliability related tasks previously identified by the entity can be used to identify the training to meet R3. We have a concern with the description of the training methods, especially that it includes the apparent requirement to use hands on training simulators. The way this is written it indicates that the use of simulators is required. If that is the intent then we disagree with the requirement. If it is not the intent then strike the use of example entirely or clarify that the training "may include methods such as." Additionally, must all of the 32 hours be comprised of drills, exercises and hands on training using simulators?
Response: The SDT SPT acknowledges your affirmative response and thanks you for your clarifying comment. The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over facilities with		

Organization	Question 2:	Question 2 Comments:
established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.		
Pepco Holdings, Inc. - Affiliates	Yes	Requirement 3 should specifically state that the tasks related to emergency operations should be taken from the list developed for Requirement 1 In addition R3 should be revised to say "using any of the following: training classes, drills, exercises or hands on training using simulations" rather than training, drills, exercises and hands on training using simulators. This allows for training classes which can still be a valuable type of emergency ops training and other types of simulation experiences as well.
Response: It was not the intent of the SPT SDT to limit the emergency operations training to only tasks identified in Requirement 1. However, those tasks associated with emergency operations identified in Requirement 1 should be included The SPT SDT believes that the tasks identified in Requirement 1 could be used as a starting point for development of the emergency operations training. Additional training topics that could be included in the training can be found in the revised Reference Document associated with this Standard. The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.		
ERCOT Inc.	Yes	The 32 hour requirement should be removed. The 32 hour requirement was an interim fix to address the absence of a SAT process in many organizations, and for political expediency. With the implementation of SAT, arbitrary mandates are no longer needed. If the 32 hour requirement remains, then the equivalent of the Fidrych letter of 2004 needs to be provided.
Response: The SDT SPT acknowledges your affirmative response and thanks you for your clarifying comment. The majority of the commenter's in Draft 2 of this Standard supported including this requirement in the System Personnel Training standard. The SPT SDT has included topics that could be included in the emergency operations training in the revised Reference Document associated with this Standard – they are the topics that were included in the letter from the Operating Committee chair to the Operating Committee for clarification when the 32 hour training requirement was initiated. The drafting team has included the topics from the Fidrych letter to the Reference Document for this standard.		
MRO NERC Standards Review Subcommittee	Yes	The MRO understands the SDT to be saying that the emergency operations tasks identified in R1.1 can be used in R3. If that is correct the MRO agrees. If this is not the intent of the SDT, please clarify.
Response: The SDT SPT acknowledges your affirmative response and thanks you for your clarifying comment.		

Organization	Question 2:	Question 2 Comments:
The SPT SDT agrees that those tasks associated with emergency operations identified in Requirement 1 should be used as a starting point for development of the emergency operations training. Additional training topics that could be included in the training can be found in the revised Reference Document associated with this Standard.		
Southwest Power Pool - Operations Training Working Group	Yes	We believe this is true, but there are certain tasks that may be required as emergency training which falls under the general list of emergency training as indicated by Mark Fiddich's letter of March 2nd, 2004 that is not expressed by Requirement 1 of company specific related tasks.
Response: The SDT SPT acknowledges your affirmative response and thanks you for your clarifying comment. It was not the intent of the SPT SDT to limit the emergency operations training to only tasks identified in Requirement 1. However, those tasks associated with emergency operations identified in Requirement 12 should be included. The SPT SDT believes that these tasks identified in Requirement 1 could be used as a starting point for development of the emergency operations training. Additional training topics that could be included in the training can be found in the revised Reference Document associated with this Standard -– they are the topics that were included in the letter from the Operating Committee chair to the Operating Committee for clarification when the 32 hour training requirement was initiated. The drafting team has included the topics from the Fidrych letter to the Reference Document for this standard.		
AEP	Yes	We believe this is true but it should not harbor the intent that all emergency training should only be in conjunction with reliability tasks. Some tasks relate to emergency training which are indirect subsets of the reliability tasks. All emergency training done for the 5 days of emergency training should be considered satisfactory training whether directly or indirectly related to a reliability task. The present guidelines for emergency training topics identified by the Personnel Sub-committee in Mark Fydrich's letter of March 2, 2004 on recommended training topics should remain the guidelines for emergency training topics.
Response: The SDT SPT acknowledges your affirmative response and thanks you for your clarifying comment. It was not the intent of the SPT SDT to limit the emergency operations training to only tasks identified in Requirement 1. However, those tasks associated with emergency operations identified in Requirement 12 should be included. The SPT SDT believes that these tasks identified in Requirement 1 could be used as a starting point for development of the emergency operations training. Additional training topics that could be included in the training can be found in the revised Reference Document associated with this Standard – they are the topics that were included in the letter from the Operating Committee chair to the Operating Committee for clarification when the 32 hour training requirement was initiated..		
We Energies	Yes	The company's task list will not identify all of the allowed emergency operations training topics.
Response: The SDT SPT acknowledges your affirmative response and thanks you for your clarifying comment. It was not the intent of the SPT SDT to limit the emergency operations training to only tasks identified in Requirement 1. However, those tasks associated with emergency operations identified in Requirement 12 should be included. The SPT SDT believes that these tasks identified in Requirement 1 could be used as a starting point for development of the emergency operations training. Additional training topics that could be included in the training can be found in the revised Reference Document associated with this Standard.		
Northeast Utilities	Yes	No specific duration associated with system restoration training. Should there be a minimum number of hours per year for system restoration training?
Response: The SDT SPT acknowledges your affirmative response and thanks you for your clarifying comment. The SPT SDT believes that the type of system restoration training and associated length of training should be determined by the individual entity.		
Manitoba Hydro	Yes	Manitoba Hydro agrees that a company's list of reliability related task which include tasks related to emergency operations

Organization	Question 2:	Question 2 Comments:
		be used to identify training needs.
Response: The SDT SPT acknowledges your affirmative response and thanks you for your clarifying comment.		
American Transmission Company	Yes	TC agrees with the SDT that the task list required by R1 can be used to identify those emergency operation tasks which can be used to satisfy R3.
Response: The SDT SPT acknowledges your affirmative response and thanks you for your clarifying comment.		
Bonneville Power Administration	Yes	
Operating Reliability Working Group (ORWG)	Yes	
Sacramento Municipal Utility District	Yes	
NPCC Regional Standards Committee	Yes	
MidAmerican Energy Company	Yes	
Grant County PUD	Yes	
Cowlitz County PUD No. 1	Yes	
Arizona Public Service Company	Yes	
E.ON U.S.	Yes	No comment
Niagara Mohawk (DBA National Grid)	Yes	
WECC Reliability Coordination Comments Work Group (RCCWG)	Yes	
CECD	Yes	
Salt River Project	Yes	
Pacific Gas and Electric Company	Yes	
Allegheny Power	Yes	
Public Service Commission of South Carolina	Yes	
ISO New England Inc.	Yes	
Baltimore Gas &	Yes	

Consideration of Comments on 3rd Draft of System Personnel Training Standard

Organization	Question 2:	Question 2 Comments:
Electric		
New York Independent System Operator	Yes	
FirstEnergy	Yes	
Ontario IESO	Yes	

3. Do you agree with the revised Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

Summary Consideration:

The majority of those entities responding agreed with the Measures as presently defined. For those responders disagreeing with the Measures, there appeared to be significant concern with the sub-measures and keeping documentation of compliance on-site. There also appeared to be confusion surrounding the training required in this Standard and the certification process.

The SPT SDT explained the sub-measures were a means to provide consistency in measuring compliance with the sub-requirements. The SPT SDT further explained that there are multiple variations of a systematic approach to training. The sub-requirements simply list common elements that are in every systematic approach to training process. The task list is used to identify the necessary training as stated in R1. A systematic approach to training is then used to develop the associated training for each task.

With regards to the concern surrounding the requirement to provide documentation on-site the SPT SDT explained that, as with other standards, it is the entity's responsibility to provide all documentation necessary to reflect compliance.

The SPT SDT also explained that the NERC Certification Process and NERC Continuing Education (CE) Program are not a part of this standard. This standard applied to all reliability-related training, not just NERC CE approved activities. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific reliability-related tasks). As envisioned, much of the training developed and delivered in accordance with this standard could be used to meet CEH.

Organization	Question 3:	Question 3 Comments:
Grant County PUD	No	I note that there is a new requirement R2 which appeared suddenly with this version. You don't seem to be taking comments directly on this new addition though. Is this in accordance with the ANSI process for standards development? The proposed new R2 and its associated measure require a new verification of operator capability to perform the tasks identified in R1 at least one time. This verification is very different from the previous requirement to perform a training needs analysis based on performance mis-matches. What is the time period allowed to do the initial verification. Since the proposed effective date is 36 months after date of approval, should one assume that entities must be in compliance at that time with the requirement to do the initial one time verification? Please explain the point of doing this verification of capabilities only once? This seems to miss the boat on the benefit of refresher training. The only requirement will be to train when a new task is identified or an existing one is modified. Thus, an entity would be absolved from providing any refresher for operators on tasks that have not changed but which may be very difficult, highly important to be done correctly and performed only infrequently? This doesn't seem to meet the needs of system operators who are an essential element in maintaining bulk electric system reliability. Does this one time verification remove the 3 year certificate renewal cycle? If not, how does the one time verification fit into the overall systematic approach to training? What's the difference between the one time verification and initial certification? If you still have to renew your certificate every 3 years, doing this verification (at least one time) makes no sense because a systematic approach to training would

Organization	Question 3:	Question 3 Comments:
		revisit training on tasks based on the results of the Difficulty, Importance, and Frequency (DIF) analysis.
Response: As stated in Draft 2 of the System Personnel Training Consideration of Comments, the SPT SDT clarified the language in R4 (now R2) to state that the assessment is a one-time verification of each system operator's capabilities. The SPT SDT also added a sub-requirement that clarifies that additional assessments must be performed as the operator's assigned task list is modified. This would not preclude an entity from verifying the capability more than once. The SPT SDT believes that with the additional training required (i.e., Emergency Operations, CEH, etc.) and the re-assessment of an operator's capabilities when the task list is modified that an initial one time training assessment is sufficient. However, this does not preclude an entity from performing training outside this Standard. The NERC Certification Process or NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific reliability-related tasks). As envisioned, much of the training developed and delivered in accordance with this standard could be used to meet CEH.		
California ISO	No	We recommend the following:M1: Delete all M1 sub-measures, since we believe all R1 sub-requirements should be eliminated.M2: Delete references to R1.1
Response: The SPT SDT believes that the sub-measures provide a necessary means of reflecting compliance with the sub-requirements. The sub-requirements simply list common elements that are in every systematic approach to training process. While the SAT process may be used by many entities, the comments received during the development of this standard indicate that there are many entities that have little or no familiarity with the SAT process.		
PJM Interconnection, LLC	No	Due to the changes recommended above, all measures and sub-measures should be eliminated except for M1 and M3.
Response: The SPT SDT believes that the measures and sub-measures provide a necessary means of reflecting compliance with the requirements and sub-requirements. The sub-requirements simply list common elements that are in every systematic approach to training process.		
ERCOT Inc.	No	M1 is fine, but as noted above M1.1 through M1.4 should be deleted along with R1.1 through R1.4. If R3 is changed, then M3 must be changed.
Response: The SPT SDT believes that the sub-measures provide a necessary means of reflecting compliance with the sub-requirements. The sub-requirements simply list common elements that are in every systematic approach to training process. There are multiple variations of a systematic approach to training. While the SAT process may be familiar to many entities, the comments received during the development of this standard indicate that many entities have little or no familiarity with the SAT process. Keeping the reference to the SAT process in R1 along with the subrequirements provides greater clarity to the intent of the requirement, so the sub-requirements were retained. R3 was modified to clarify what entities are required to use simulation technology in their emergency operations training – and M3 was modified to support the revisions to R3.		
MidAmerican Energy Company	No	Some training materials will be the property of third party providers of learning activities. Not all training materials will be developed by entity that developed the task list as suggested in M1.2. M1.2 should modified to "...have available for inspection its learning objectives and any training material self-supplied as specified in R2.2Based on what I have heard, the records kept in the NERC data base can not be accessed by anyone other than the system operator. M1.3 should be modified to read, "... showing the names of the people trained, the title of the training received and dates received to show that its operators received the training specified in R1.3 (2.3)
Response: The SPT SDT revised the measures from Draft 2 to Draft 3. As stated in the Consideration of Comments on 2nd Draft of System Personnel Training Standard the measures now include examples of evidence, which do not exclude the use of vendors.		

Organization	Question 3:	Question 3 Comments:
With reference to Measure 1.2 the SPT SDT acknowledges your comment and understands you concern. However, as with other standards it is the entity's responsibility to provide all documentation necessary to reflect compliance. The Measure for training delivery (M1.3) requires responsible entities to have System Operator training records showing the names of the people trained, the title of the training delivered and the dates the training was delivered.		
Santee Cooper	No	Santee Cooper feels that some of the items of evidence defined in the measures are not part of the SAT process (audit results, supervisor feedback). The SDT may have been trying to give some examples here but during an audit a company may be held to provide all the listed items as evidence. Including some words such as "shall have and provide upon request evidence that could include, but is not limited to" would help clarify that the list is examples only and that all items do not have to be provided during an audit.
Response: The Measures lists examples of a means to document compliance. However an entity is not limited to only the methods provided in the measure. The SPT SDT believes that it is the entity's responsibility to determine how it will show compliance unless the standard specifically requires entities to show specific evidence. The Measures have been written to allow entities latitude in using a variety of evidence for most requirements. The use of the phrase, "such as" clearly demonstrates that the items listed are examples and are not an exclusive or a mandatory list of evidence. The SPT SDT modified the measure to clarify that the audit that may be used to assess the effectiveness of the training program is an "internal" audit.		
SERC System Operator Subcommittee (SOS) of the SERC Operating Committee	No	Section C of this standard indicates that responsible entities will be measured on specific items of evidence that demonstrate use of the SAT. However, many of these items are not explicitly stated in the standard requirements themselves. For instance, Measure M1.4 lists evidence such as instructor observations and learning assessments that were not previously identified in R1.4. In addition, some items of evidence for measuring entity performance are not part of the SAT process at all - for example, audit results and supervisor feedback. The requirements section of this standard needs to be reworded to better define what specific items of evidence are required.
Response: The Measure M1.4 lists examples of a means to document compliance. However an entity is not limited to only the methods provided in the measure. The SPT SDT believes that it is the entity's responsibility to determine how it will show compliance. The SPT SDT modified the measure to clarify that the audit that may be used to assess the effectiveness of the training program is an "internal" audit.		
SERC OC Standards Review Group (Project 2006-01)	No	Section C of this standard indicates that responsible entities will be measured on specific items of evidence that demonstrate use of the SAT. However, many of these items are not explicitly stated in the standard requirements themselves. For instance, Measure M1.4 lists evidence such as instructor observations and learning assessments that were not previously identified in R1.4. In addition, some items of evidence for measuring entity performance are not part of the SAT process at all - for example, audit results and supervisor feedback. The requirements section of this standard needs to be reworded to better define what specific items of evidence are required.
Response: The Measure M1.4 lists examples of a means to document compliance – this is an acceptable method of establishing measures. However an entity is not limited to only the methods provided in the measure. The SPT SDT believes that it is the entity's responsibility to determine how it will show compliance unless the standard specifically requires entities to show specific evidence. The Measures have been written to allow entities latitude in using a variety of evidence for most requirements. The use of the phrase, "such as" clearly demonstrates that the items listed are examples and are not an exclusive or a mandatory list of evidence. The SPT SDT modified the measure to clarify that the audit that may be used to assess the effectiveness of the training program is an "internal" audit.		
FirstEnergy	No	M1.4 - The parenthetical examples are good to help with the compliance of R1.4, but entities may be tied down to these specific methods. Just to assure that other effective methods can be used, we suggest a rewording of M1.4 as follows: "The Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence that it performed a training program evaluation, as specified in R1.4 (evidence may include, but not limited to, instructor

Organization	Question 3:	Question 3 Comments:
		observations, trainee feedback, course evaluations, etc.)
Response: The Measure M1.4 lists examples of a means to document compliance. The use of the phrase, "such as" clearly demonstrates that the items listed are examples and are not an exclusive or a mandatory list of evidence. However an entity is not limited to only the methods provided in the measure. The SPT SDT believes that it is the entity's responsibility to determine how it will show compliance unless the standard specifically requires entities to show specific evidence. The Measures have been written to allow entities latitude in using a variety of evidence for most requirements.		
MRO NERC Standards Review Subcommittee	No	The MRO believes that the requirement in M1.2 to provide training materials could create an undo burden on the applicable entity if the audit was not conducted at the entity's site. The MRO recommends that this measure should be altered to reflect that concern.
Response: The SPT SDT acknowledges your comment and understands you concern. However, as with other standards it is the entity's responsibility to provide documentation to reflect compliance.		
Midwest ISO Stakeholder Collaborators	No	We are concerned that M1.2 could be burdensome. Specifically, what does have available for inspection mean? Training materials are often quite voluminous and can actually include systems such as simulators. We do not believe that the registered entity should be required to make these materials available for inspection off-site. We recommend modifying the measure to make it clear that inspection must occur at the location of the materials and systems to avoid this burden.
Response: The SPT SDT acknowledges your comment and understands you concern. However, as with other standards it is the entity's responsibility to provide all documentation necessary to reflect compliance.		
The Detroit Edison Company	No	We believe M1.2 should read: Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and a representative sample of training materials with all training materials available at the business location, with the date of the last revision, as specified in R1.2.
Response: The SPT SDT acknowledges your comment but respectfully disagrees. All training material needs to be available for inspection. As with other standards it is the entity's responsibility to provide documentation to reflect compliance.		
Duke Energy Corporation	No	See response to question #1 above. All the requirements of this standard need to be revised and the measures should be developed to fit the revised requirements.
Response: The philosophy used to develop this Standard is based on the industry need from the industry approved SAR. As stated previously in our response to comments dated August 15, 2007 only specific tasks that are considered critical to reliability should be considered when developing a task list. The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard details some topics that could be considered and included in a task list.		
PSEI	No	This process should only apply to those entities that are NERC approved providers awarding CEHs.
Response: This Standard applies only to those NERC registered applicable entities as defined within the Standard. This includes all Reliability Coordinators, Transmission Operators and Balancing Authorities. The NERC Certification Process or NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific reliability-related tasks). As envisioned, much of the training developed and delivered in accordance with this standard could be used to meet CEH.		
Ohio Valley Electric Corporation	No	The emphasis on documentation in this standard does not seem conducive to improved reliability, as a previous commenter from Draft 1 of this standard observed. The measures may provide an incentive to create documents, but are there mechanisms in the compliance process to distinguish between an entity that is providing the appropriate training and

Organization	Question 3:	Question 3 Comments:
		documenting it versus an entity that is merely creating documents? Similarly, an entity may be taking all of the right steps, providing the necessary training, but lacks having all of the mandated documentation (perhaps because of a lack of resources to maintain the documentation). Between the paper-creating entity and the proper training entity, which is in compliance and more importantly which is more reliable? Some may comment that without documentation there is no way to measure compliance. While compliance auditors will certainly look at documentation they make no attempt to compare the contents of the documentation with actual practices. If the documentation contains the right words, the entity is deemed to be in compliance, regardless of whether the words in the documents were put into practice. Thus, if compliance can be verified by observing the actual practices, then why is the documentation even needed?
Response: The SPT SDT acknowledges your comment but respectfully disagrees. With enforceable standards, every effort needs to be made to ensure that the standards are being enforced in an objective manner – and that is difficult to do when relying upon personal observations. The SPT SDT believes that supporting documents are necessary means to reflect compliance with the Standard.		
LCRA	No	If I do not agree with the task list in the first place, it only follows that I would not agree with the measures. The measures themselves create an administrative nightmare for smaller utilities with respect to record keeping. There seems to be a disconnect on NERC's part as to how much the "one man shops" can handle. Not every utility in NERC has a large, complex training staff. In fact, many have one trainer, or even none. What is proposed by this standard will make training unmanageable.
Response: The SPT SDT acknowledges your comment but respectfully disagrees. The SPT SDT believes that supporting documents are necessary means to reflect compliance with the Standard.		
CAISO	No	No comment
Gainesville Regional Utilities	No	
Entergy Services, Inc. System Planning & Operations (Generation & Marketing)	Yes	See the comment regarding "company specific" in question 1.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment. The Standard is not intended to specify how an entity develops the company specific task lists. Whatever is logical and fits the organizational structure that is justifiable should be sufficient. Only specific tasks that are considered critical to reliability should be considered when developing a task list. The number of tasks identified by each entity will vary depending upon the operating position, responsibility of the position and the specific system for which the list is being developed. The revised Reference Document associated with the Standard details some topics that could be considered and included in a task list.		
Arizona Public Service Company	Yes	M2 is unclear to me. The way I read it, within 36 months of the standard's approval, each operator must be evaluated on each assigned task, even if they are experienced incumbents. This may be done in one of three "methods": Training records, Supervisor check sheets, or Learning assessments. These "methods" are open to interpretation. To me, they mean the following: Training records = training on the task is provided and evaluated and the attendance sheet and grade is archived Supervisor checklist = floor supervisor sees operator perform task satisfactorily and marks it complete on a tracking sheet. Learning assessment = an operator successfully answers questions about a given task. Somebody may interpret those methods entirely differently. We need to understand the expectations, or the audit will be needlessly painful.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment. We agree with your interpretation of M2.		

Organization	Question 3:	Question 3 Comments:
WECC Reliability Coordination Comments Work Group (RCCWG)	Yes	The WECC RCCWG agrees with the revised Measures, assuming that there would be a 12 month requirement for emergency training for new hires. Please clarify this is a correct assumption.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment. Your understanding is correct.		
Pepco Holdings, Inc. - Affiliates	Yes	Revise M1 to reflect the revised wording in R1 above. For example: Each RC, TA and TOP shall have available for inspection evidence of establishing a new or modifying an existing training program developed using a systematic approach to training. A 4th Requirement and a 4th Measure should be added - see our comments in 5 below
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment but feels that the present wording is sufficient.		
FRCC	Yes	However, It appears that the measure after M1.3 that is identified by M1. should really be M1.4 And, if the requirements change based on industry comments the measurements will need to be reevaluated and modified.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment. This has been corrected.		
Manitoba Hydro	Yes	Manitoba Hydro agrees with the measures.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment.		
Sacramento Municipal Utility District	Yes	
Northeast Utilities	Yes	
NPCC Regional Standards Committee	Yes	
firstenergy	Yes	
Bonneville Power Administration	Yes	
tampa electric company	Yes	
Operating Reliability Working Group (ORWG)	Yes	
Cowlitz County PUD No. 1	Yes	
E.ON U.S.	Yes	
Hydro One Networks - Reliability Standards Group	Yes	
American Transmission Company	Yes	
Niagara Mohawk (DBA National Grid)	Yes	
Southwest Power Pool	Yes	

Consideration of Comments on 3rd Draft of System Personnel Training Standard

Organization	Question 3:	Question 3 Comments:
- Operations Training Working Group		
CECD	Yes	
Salt River Project	Yes	
Pacific Gas and Electric Company	Yes	
Xcel Energy	Yes	
Allegheny Power	Yes	
Public Service Commission of South Carolina	Yes	
WECC Operations Training Subcommittee	Yes	
ISO New England Inc.	Yes	
AEP	Yes	
BCTC	Yes	
We Energies	Yes	
Baltimore Gas & Electric	Yes	
New York Independent System Operator	Yes	
Ontario IESO	Yes	

4. Do you agree with the revised Violation Severity Levels for each of requirement in the revised standard? If not, please explain in the comment area.

Summary Consideration:

The majority of responders disagreed with the Violation Security Levels (VSLs) associated with this Standard. The major concern centered on how the VSLs were developed. There was also concern that the requirement of providing 32 hours of emergency operations training was not being addressed in the VSLs. In addition there appeared to be concern that the Standard required that all of the methods of providing training identified in Requirement 3 had to be used.

The VSLs are determined in accordance with the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs and that this document was a product developed jointly by the stakeholder drafting teams and Subject Matter Experts, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel.

Regarding the concern that the requirement of providing 32 hours of emergency operations training not being addressed in the VSLs - the VSLs, as presently written, address the issue of providing less than the required number of hours of emergency training. In the instance of an entity only providing 30 hours of emergency training to all of its system operators, that entity would have provided 32 hours of emergency operations training to 0% of the system operators and therefore would be deemed non-compliant.

The training methods identified in Requirement 3 are only examples of how the training could be accomplished. The SPT SDT modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read:

R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel.

R3.1 “Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

The SDT is not attempting to define the method of training (with the exception of the use of simulators) but feels it was more prudent for the individual entity to determine the best method of providing the training to its System Operators dependent upon their unique system parameters.

Organization	Question 4:	Question 4 Comments:
FRCC	No	For R1, the Medium VSL states "…..evaluating its training program efectiveness to…" The word effectiveness is not in the requirement and is vague. What does effectiveness mean and how would it be evaluated. We would recommend removing the word effectiveness and sticking to what the requirement states. For the High and Severe VSLs, the phrase "when developing a new or modifying an existing training program" is used. These words are not in the requirements and we are unclear as to how they should be evaluated. There is not a

Organization	Question 4:	Question 4 Comments:
		requirement to modify the training program, only to conduct an evaluation of the training program to identify changes. This phrase added into the VSL descriptions seems to imply more than the requirements actually state. Either remove this phrase or modify the requirements to be more clear. For the Severe VSL do the words "…failed to deliver training based on the BES company specific reliability related task list." mean that every task must be trined on, or only tasks from the list, or you only have to include some of the list to get the check off? For R2, the first part of the requirement only requires that verification of the operators capabilities be done at least one time. There is no time period specified. Then later in the requirement it speaks to verification within 6 months of a modification of the tasks. It looks like having the VSL be high when the responsible entity fails to verify capabilities within 6 months of a change is in conflict with having 90-100% verification be a medium since its quite possible that more than 90% would be verified, even without verifying the changed capabilities.
Response: The SPT SDT acknowledges your response concerning the Requirement 1 VSL and is in agreement. The word "effectiveness" has been removed from the Requirement 1 VSL. In regards to your comment concerning the use of the term "developing" in the VSL, the SPT SDT believes that developing a new training program is the same as establishing a new training program. This terminology used in the standard is reflected in the VSL and the measures associated with this requirement provide examples of evaluation criteria. In addition, all tasks identified in the BES company specific related task list must have associated training. We appreciate your comments concerning Requirement 2 but do not see a conflict based on the VSLs associated with the requirements. Requirement 2 does require the verification of the operators capabilities be done at least one time (on the BES company specific reliability related task) whereas Requirement 2.1 is applying a time frame to train the system operators when any changes occur in the entity's BES company specific reliability related task list.		
Hydro One Networks - Reliability Standards Group	No	Where is the VSL for R1.1.1 (annual update to list of tasks)? As well, the VSL for R1.4 needs a time frame (see comment for question 1). Also, the VSL for R3 should be re-written based on number of hours of training completed or incomplete rather than % of operators trained. Having any operator untrained (less than xx hours/12 months) should be lumped into the Severe VSL.
Response: The SPT SDT thanks your catching this oversight. The moderate VSL has been modified to reflect compliance with R1.1.1. The SPT SDT has modified Requirement R1.4 to provide a time frame for evaluation of a training program. R1.4 now reads "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an "annual" evaluation of the training program established in R1 to identify any needed changes to the training program and shall implement the changes identified". This provides the necessary medium for evaluating compliance. With regards to your concern with Requirement 3, the determination of Violation Severity Levels (VSLs) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when developing VSLs. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel.		
PSEI	No	Administrative type violations should not result in High or Severe VSLs. Especially for the omission of a single task or piece of "evidence".
Response: The determination of the Violation Severity Level (VSL) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs. The VSL		

Organization	Question 4:	Question 4 Comments:
Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel. In addition, if a task is significant enough to warrant inclusion in the BES company specific related task list then the associated training must be provided. Failure to provide the training would imply the task was not important enough to warrant the time to provide the necessary training. This develops in to a conundrum.		
Southwest Power Pool - Operations Training Working Group	No	Most operators base their training schedules on a twelve month calendar instead of the six month limit as noted in the proposed standard on R2 High VSL. R3 High VSL makes no provision for hardships or mid-year hires.
Response: The high VSL is associated with R2.1 which applies a six month time frame to train the system operators when any changes occur in the entity's BES company specific reliability related task list. Additionally, the determination of the Violation Severity Level (VSL) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel. The Standard Drafting Team recognizes that hardship circumstances will arise. The SDT feels that these instances will be addressed on a case- by-case basis by the Compliance Monitoring Enforcement Program (CMEP). It is not feasible that a Standard could address every possible situation.		
Ohio Valley Electric Corporation	No	The Violation Severity Levels are all skewed towards the severe level. The Violation Severity levels should be skewed towards the lower level.
Response: The determination of the Violation Severity Level (VSL) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel.		
tampa electric company	No	I do not agree that any part of a training program should have high or severe VRFs.
Response: The SPT SDT assumes that your comment concern the VSLs since the question referenced VSLs not VRFs. The determination of the Violation Severity Level (VSL) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel. Note that VSLs identify categories of noncompliant performance with the "Lower VSL" identifying performance that was close to being fully compliant and "Severe" VSL identifying performance that does not meet the intent of the requirement– VSLs do not identify the reliability-related risk associated with noncompliance.		
Operating Reliability Working Group (ORWG)	No	Why is missing one new or modified task just as severe as missing 30% of the existing tasks in R2?
Response: The SPT SDT acknowledges your response but feels there may be a misunderstanding of the VSL. The first portion of the VSL relates to the number of System Operators that received the necessary training identified. The second half of the VSL references a task that has been identified as a reliability related issue but training on the issue was not provided to the System Operators. In either instance the SPT SDT believes that one is as significant as the other.		
Santee Cooper	No	The Severe VSL for all requirements should be the responsible entity did not have a training program. Shift the medium VSL to the lower, the high VSL to the medium, etc. for all the requirements. It appears that an entity that has implemented a reasonable training program could be punished severely.

Organization	Question 4:	Question 4 Comments:
Response: The determination of the Violation Severity Level (VSL) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel. Note that VSLs identify categories of noncompliant performance with the "Lower VSL" identifying performance that was close to being fully compliant and "Severe" VSL identifying performance that does not meet the intent of the requirement– VSLs do not identify the reliability-related risk associated with noncompliance.		
WECC Operations Training Subcommittee	No	By the definition of the VSL the administrative functions of non-compliance does not put the BES at risk, thus all the current VSL should include a lower VSL.
Response: The determination of the Violation Severity Level (VSL) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel. Note that VSLs identify categories of noncompliant performance with the "Lower VSL" identifying performance that was close to being fully compliant and "Severe" VSL identifying performance that does not meet the intent of the requirement– VSLs do not identify the reliability-related risk associated with noncompliance.		
WECC Reliability Coordination Comments Work Group (RCCWG)	No	The WECC RCCWG believes that the Severe VSL for R3 should be worded as follows: "... The responsible entity did not include in its emergency training, the use of drills, exercises, OR (emphasis added) hands on training using simulators. The WECC RCCWG does not believe that all three types of training must be covered. Additionally, simulation can be accomplished without the use of a simulator.
Response: In FERC Order 693 the Commission (FERC) directed NERC to provide for the use of simulators as a means of training. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. The SPT SDT did not attempt to define the method of training (with the exception of the use of simulators) but felt it was more prudent for the individual entity to determine the best method of providing the training to their System Operators dependent upon their unique system parameters.		
We Energies	No	R3 Severe VSL: The phrase "....the use of drills, exercises, and hands on training using simulators." is reasonably interpreted as "the use of drills and exercises and hands on training using simulators." This phrase should be reworded.
Response: The SPT SDT has modified Requirement 3 to provide clarity. The requirement now reads " At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel.		

Organization	Question 4:	Question 4 Comments:
The SPT SDT did not attempt to define the method of training (with the exception of the use of simulators) but felt it was more prudent for the individual entity to determine the best method of providing the training to their System Operators dependent upon their unique system parameters.		
NPCC Regional Standards Committee	No	For R3, there should be VSLs assigned for providing less than 32 hours of training, not just on the percentage of system operators receiving the 32-hour training.
Response: The SDT believes that the VSL, as presently written, addresses the issue of providing less than the required number of hours of emergency training. For instance, if an entity were to only provide 30 hours of emergency training to all of its system operators, the entity would have provided 0% of the system operators with 32 hours of emergency operations training and therefore would be deemed to be non-compliant with the requirement.		
Niagara Mohawk (DBA National Grid)	No	For R3, there should be VSLs assigned for providing less than 32 hours of training, not just on the percentage of system operators receiving the 32-hour training.
Response: The SDT believes that the VSL, as presently written, addresses the issue of providing less than the required number of hours of emergency training. For instance, if an entity were to only provide 30 hours of emergency training to all of its system operators, the entity would have provided 0% of the system operators with 32 hours of emergency operations training and therefore would be deemed to be non-compliant with the requirement.		
ISO New England Inc.	No	For R3, there should be VSLs assigned for providing less than 32 hours of training, not just on the percentage of system operators receiving the 32-hour training.
Response: The SDT believes that the VSL, as presently written, addresses the issue of providing less than the required number of hours of emergency training. For instance, if an entity were to only provide 30 hours of emergency training to all of its system operators, the entity would have provided 0% of the system operators with 32 hours of emergency operations training and therefore would be deemed to be non-compliant with the requirement.		
Ontario IESO	No	For R3, there should be VSLs assigned for providing less than 32 hours of training, not just on the percentage of system operators receiving the 32-hour training.
Response: The SDT believes that the VSL, as presently written, addresses the issue of providing less than the required number of hours of emergency training. For instance, if an entity were to only provide 30 hours of emergency training to all of its system operators, the entity would have provided 0% of the system operators with 32 hours of emergency operations training and therefore would be deemed to be non-compliant with the requirement.		
SERC System Operator Subcommittee (SOS) of the SERC Operating Committee	No	All requirements of this standard need to be adequately defined before violation severity levels can be identified and applied.
Response: The SPT SDT acknowledges your comment but feels that the present wording of the requirements provides for sufficient clarity.		
SERC OC Standards Review Group (Project 2006-01)	No	All requirements of this standard need to be adequately defined before violation severity levels can be identified and applied.
Response: The SPT SDT acknowledges your comment but feels that the present wording of the requirements provides for sufficient clarity.		
California ISO	No	Since we recommended deleting all R1 sub-requirements, all references to the "task list" should be changed to "BES company-specific reliability-related tasks"
Response: As we stated earlier, there are multiple variations of a systematic approach to training. The sub-requirements simply list common elements that are in every systematic approach to training process. With regards to your comment concerning referencing a task list, the SPT SDT agrees and the term, “task list” has been replaced with “tasks”.		
PJM Interconnection, LLC	No	The R1 VSL should be based on the overall number of training components or modules that an entity is non-compliant with in comparison to the size of its overall training program. For example, if an entity does not use the SAT methodology in two

Organization	Question 4:	Question 4 Comments:
		of its 50 training modules, the VSL would be lower than if its total number of courses was only 20.The R2 VSL should be eliminated, as recommended above. The R3 VSL statement? OR The responsible entity did not?? Should be eliminated.
Response: The determination of the Violation Severity Level (VSL) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel. With regards to your comment concerning R1 VSLs, the SPT SDT believes that the intent of the Requirement is to use a systematic approach to training for all company-specific reliability-related tasks. Therefore, the SDT does not feel that it would sufficient to measure compliance on the percentage of processes used. The SPT SDT acknowledges your comments concerning the VSLs associated with Requirements 2 and 3. However, The SPT SDT believes that the VSLs, as written, provide the necessary means to reflect the degree of non-compliance with the standard.		
Pacific Gas and Electric Company	No	Much of this standard reflects documentation of an individual and their training program. Documentation of training is not a guarantee that operational errors won't occur, merely that training did or did not occur. In reviewing the VSLs we question why there is not a category of "Lower" added to the VSLs and why there is a category of "Severe". Is it to be assumed that lack of documentation is a possible precursor to an operator having an operational error on the BES? The VSLs need to reflect the affect on the BES from the lack of performing a requirement and lack of documentation for training on a dynamic system does not warrant a "Severe" level.
Response: We appreciate your comment and agree that documentation alone is not a guarantee of the operator's ability. The registered entity must supply evidence that it has met the requirements as specified in the reliability standard. Compliance auditing must adhere to the ERO Rules of Procedure as approved by FERC. The determination of the Violation Severity Level (VSL) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel.		
BCTC	No	Any violation of an administrative nature should not put the BES at risk, thus all the current Requirements that are of an administrative nature should have a lower VSL. Many of the Requirements are administrative issues. For example, if the administration is not done but training has been completed then the risk to the Power System is quite different than if training is not being done.
Response: The registered entity must supply evidence that it has met the requirements as specified in the reliability standard. Compliance auditing must adhere to the ERO Rules of Procedure as approved by FERC. Violation Severity Levels identify categories of noncompliant performance – performance that is very close to being fully compliant has a "Lower" VSL and noncompliant performance that does not meet the intent of the requirement is a "Severe" VSL. Violation Risk Factors (VRFs) assess the reliability-related impact of a violation. The determination of the Violation Severity Level (VSL) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel.		
MRO NERC Standards Review	No	Violation Severity Levels: R1, This requirement is based on using the SAT process (creating an Operator Task list and updating that Task list is part of the SAT process).

Organization	Question 4:	Question 4 Comments:
Subcommittee		▪ The Lower VSL should read "The entity used at least 75%, but less than 100% of the SAT processes in its training program. ▪ The Medium VSL should read “The entity used at least 50% but less than 75% of the SAT processes in its training program. ▪ The High VSL should read " The entity used at least 25% but less than 50% SAT processes in its training program. The ▪ Severe VSL should read " The entity used less than 25% of the SAT process in its training program. R2, This requirement is based on the entity verifying that a System Operator can perform the task (list) identified in R1.1. ▪ The Lower VSL should read "The entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks.” ▪ The Medium VSL should read "The entity verified at least 80% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks.” ▪ The High VSL should read "The entity verified at least 70% but less than 80% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks.” ▪ The Severe VSL should read "The entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks." R3, This requirement is based on System Operators shall have 32 hours of emergency training per year. The written VSL for R3 is based on the number of System Operators not the hourly amount of training per System Operator. So, if we had 10 System Operators all with 31 hours of emergency training, we would be in the Severe VSL column. But if we had 10 System Operators, 9 with 32 hours, 1 with 0 hours of emergency training, we would be in the Medium VSL column. R3's VSLs need to be rewritten. ▪ The LOWER VSL should read "At least 1 System Operator had less than 32 hours of emergency training but greater than 30 hours. ▪ The Medium VSL should read "At least 1 System Operator had less than 30 hours of emergency training but greater than 28 hours. ▪ The High VSL should read "At least 1 System Operator had less than 28 hours of emergency training but greater than 26 hours.

Organization	Question 4:	Question 4 Comments:
		▪ The Severe VSL should read "At least 1 System Operator had less than 26 hours of emergency training.
Response With regards to your comment concerning R1 VSLs, the SPT SDT believes that the intent of the Requirement is to use a systematic approach to training for all company-specific reliability-related tasks. Therefore, the SDT does not feel that it would be sufficient to measure compliance on the percentage of the processes used. Concerning your comment related to R3 VSLs, the SPT SDT believes that the requirement is to provide 32 hours of emergency operations training and to provide less than the 32 hours of training would be insufficient to meet the requirement of the standard.		
Entergy Services, Inc. System Planning & Operations (Generation & Marketing)	No	The VSLs should be as simple as possible. In general, complicated VSLs add unnecessary confusion to addressing compliance. The proposed VSLs for R1 weight each specific sub requirement in one of the VSL categories rather than taking the approach of how much of the SAT process is performed. We recommend a volumetric approach such as SEVERE = "the entity demonstrated less than 2 of the required elements of a SAT training program as identified in R1 through R 1.4".The proposed VSL for R2 is not consistent in its approach to the modified company-specific reliability task list. It should have a graduated scale just as the "original" task list. The proposed VSL for R3 drops the "use of drills, exercises," into the Severe category. Eliminate this as this is defined in the requirement it self. If VSL will dependent upon how much training is accomplished using "drills, exercises," then the VSLs must be graduated as well. E.g. Severe = less than 18 hours of emergency training included drills, exercises, and hands on simulators".
Response: With regards to your comment concerning R1 VSLs, the SPT SDT believes that the intent of the Requirement is to use a systematic approach to training for all company-specific reliability-related tasks. Therefore, the SDT does not feel that it would sufficient to measure compliance on the percentage of processes used. The SPT SDT feels that the VSLs for R2 and R3, as currently written, provide for the use of a graduated scale for determination of compliance violation severity. Therefore, the SDT does not believe that any further revisions would provide increased clarity for determining compliance violation severity. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other forms of training, which could include simulations. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. Concerning your comment related to R3 VSLs, the SPT SDT believes that the requirement is to provide 32 hours of emergency operations training and to provide less than the 32 hours of training would be insufficient to meet the requirement of the standard.		
AEP	No	R1 Medium VSL - Should be changed to read: "The responsible entity failed to utilize training materials designed and developed with learning objectives based on the BES company specific reliability related task list (when developing a new or modifying an existing training program)." R2 High VSL - The second part of the VSL after "OR" should be changed to read 12 months rather than 6 months as

Organization	Question 4:	Question 4 Comments:
		follows: "The responsible entity failed to verify its system operators? capabilities to perform each new or modified task within Twelve months of making a modification to its BES company-specific reliability related task list". R3 VSLs do not allow for hardships, mid-year hire of certified operators or mid-year certification of new operators. This means that just one operator not receiving the 32 hours of emergency training for any reason would constitute a Medium VSL. We believe each VSL should have the following statement (or similar clarification/exemption) added for R3: "Emergency Hours for system operators who have worked in real-time operations 10 months or less in the year due to hardship, military duty, or other reasons, will be exempt from the 32 hour requirement as follows: less than 10 but more than 8 months - 24 hours of emergency operations training is required; less than 8 months but more than 6 months - 16 hours of emergency operations training is required; less tan 6 months but more than 4 months - 8 hours of emergency operations training is required; less than 4 months - totally exempt".
Response: R1: This requirement is addressing training material development criteria (R1.2). To change the VSL to include use of training materials designed and developed would not accurately reflect the requirement. The severe VSL addresses the delivery of the developed training materials (R1.3). R 2.1 states "*Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks.*" The timeline for verification is 6 months as outlined in the requirement whereas R3 has a timeline of 12 months. R3 states: At least every 12 months each Reliability Coordinator, Balancing Authority, and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. The requirement does not address the different scenarios as stated in your response. Including such would make the requirement very complicated. The VSL does not address new hires or hardships as it's a reflection of the requirement. The regional entity has flexibility in its assessment of a penalty to take this into account. The VSL Severity levels applied to this requirement is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide apply a more consistent application when developing VSLs.		
ERCOT Inc.	No	When the sub-requirements of R1 are removed, the VSLs need to be completely revised. As written, the VSL for R1 is inconsistent with the requirement. The requirement is to use a systematic approach to training; nowhere does it mention "program effectiveness". This VSL would seem to be imposing a new requirement.
Response: The SPT SDT acknowledges your response concerning the Requirement 1 VSL and is in agreement. The word "effectiveness" has been removed from the Requirement 1 VSL.		
Pepco Holdings, Inc. - Affiliates	No	R1 the Medium VSL contains the word "effectiveness" this word should be removed, effectiveness is not mentioned as a part of Requirement 1. Revise the High VSL. Proposed wording: The responsible entity failed to show evidence of developing a new training program or modifying an existing program based on a systematic approach to training in that it did not develop new (or modify existing) learning objectives or design new (or modify existing) training materials based on its company specific reliability related task list Revise the Severe VSLs - examples: The responsible entity failed to show evidence of delivering training to its operators.

Organization	Question 4:	Question 4 Comments:
		OR it failed to show evidence of using a systematic approach to training in that it failed to create a list of company specific reliability related tasks upon which to develop a new training program or modify an existing one The High VSL for R2 concerning "verifying operators capabilities to perform new or modified tasks within 6 months" should be moved to Medium. As currently stated a company that failed to verify operators for one new or modified task but verified 100% of its operators on existing tasks would have a Violation Severity Level higher than a company that only verified 90% of its operators on existing tasks. The Severe VSL for R3 on use of drills, exercises etc. should be moved to Medium which would better reflect the suggested revised R3 and indicate that drills, exercises and hands on training simulations are of higher value than training classes alone for emergency operations training Additional VSLs should be developed to address the 4th Requirement proposed in 5 below. Example: ▪ R4 High. The responsible entity failed to show evidence that it used a systematic approach to training to develop a training program for its delegated tasks. ▪ R4 Severe The responsible entity failed to develop a training program for the entities to whom it has delegated tasks
Response: The SPT SDT acknowledges your response concerning the Requirement 1 VSL and is in agreement. The word “effectiveness” has been removed from the Requirement 1 VSL. The SPT SDT acknowledges your comment concerning revision of the VSLs associated with Requirements 1, 2 and 3, but respectfully disagrees. The SDT believes that the VSL’s, as presently written, provide for sufficient clarity as well as an effective means of categorizing the degree of non-compliance. The determination of the Violation Severity Level (VSL) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel.		
New York Independent System Operator	No	Remove the relative term "effectiveness" from the medium VSL on R1. It is not a measurable quantity.
Response: The SPT SDT acknowledges your response concerning the Requirement 1 VSL and is in agreement. The word “effectiveness” has been removed from the Requirement 1 VSL.		
Duke Energy Corporation	No	See response to question #1 above. All the requirements of this standard need to be revised and the VSLs should be developed to fit the revised requirements.
Response: The philosophy used to develop this Standard is based on the industry need from the industry approved SAR. The determination of the Violation Severity Level (VSL) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel.		
LCRA	No	
Gainesville Regional	No	

Organization	Question 4:	Question 4 Comments:
Utilities		
CAISO	No	No comment
The Detroit Edison Company	No	Don and Mike to address.
Sacramento Municipal Utility District	Yes	The VSL should be either eliminated or at a minimum moved to lowest VSL. The verbiage seems ambiguous and it is debatable that a BES risk exists.
Response: The SPT SDT acknowledges your positive response and thanks you for your clarifying comment. The determination of the Violation Severity Level (VSL) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel. Violation Severity Levels do not assess the reliability-related risk caused by a violation of a specific requirement. Violation Risk Factors assess the reliability-related risk of a violation of a requirement. Violation Severity Levels categorize noncompliant performance such that noncompliant performance that is very close to being fully compliant is a "Lower" Violation Severity Level – and noncompliant performance that is mostly or totally misses being fully compliant is a "Severe" Violation Severity Level.		
Northeast Utilities	Yes	For R2, VSL states "At least 90% but less than 100% of its system operator's capability to perform each assigned task." Is the measure for number of system operators or number of assigned tasks?
Response: The SPT SDT acknowledges your positive response and thanks you for your clarifying comment. The VSL is based on the number of system operators.		
Manitoba Hydro	Yes	Manitoba Hydro agrees with the revised VSL for each requirement.
Response: The SPT SDT acknowledges your positive response and thanks you for your clarifying comment.		
American Transmission Company	Yes	R1 High VSL Suggested modification: Delete everything after "task list" Proposed language: The responsible entity failed to design and develop learning objectives and training materials based on the BES company-specific reliability related task list. The additional language in the draft does not appear in Requirement 1.2 and makes the VSL confusing. R1 Severe VSL. Suggested new language: The responsible entity does not have a task list in their systematic approach to training or The responsible entity failed to deliver the training as specified in their systematic approach to training R2 VSLATC would suggest that the SDT allow for the number of task to be a weight in the calculation of the percentages. Examples: Company a has ten operators and 100 tasks on their task list. Example: The responsible entity was unable to verify that two of its operator's were capable of performing 1 out of the 100 tasks listed in their SAT. (2 * 1) / (10 * 100) = .2% .2% - 100% = 99.8% The violation would fall in the Medium VSL. The way the current VSL is written it seem that the compliance auditor would use the following formula. 2 / 10 = 20%20% - 100% = 80% The violation would fall in the High VSLATC is requesting that both the number of operators and the size of the task list are included in the calculation for a VSL. R3 VSL ATC believe that both the number of operators and the amount of 32 hours not satisfied should be included in the calculation of the percentage. Examples: Company a has ten operators and each is required to have 32 hours of emergency operations training Example: The responsible entity verified that two of its operator's only completed 30 hours of emergency training. The remaining eight completed all the required hours. (2 * 2) / (10 * 32) = 1.25% 1.25% - 100% = 98.75% The

Organization	Question 4:	Question 4 Comments:
		violation would fall in the Medium VSL. The way the current VSL is written it seem that the compliance auditor would use the following formula. 2 / 10 = 20%20% - 100% = 80% The violation would fall in the High VSLR3 Severe VSL It is our interpretation that the list, specified in R3, are only examples of the types of training. (drills, exercises, and hands on training using, simulators) The language used in the Severe VSL for R3 seems to contradict our interpretation. If the SDT's intent of the list is to provide examples then we believe that the following language should be deleted. "The responsible entity did not include in its emergency training, the use of drills, exercises, and hands on training using simulators." Measure M3 seems to support our interpretation that it is only a list of examples.
Response: R1 specifies application of the SAT process to new or modifying an existing training program. R1.2 is a sub-requirement of R1 which applies to all new of modified training programs based on the BES company-specific reliability related task list. The VSL percentages applied to this requirement are based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide apply a more consistent application when developing VSLs. Concerning your comment related to R3 VSls, the SPT SDT believes that the requirement is to provide 32 hours of emergency operations training and to provide less than the 32 hours of training would be insufficient to meet the requirement of the standard. The SPT SDT acknowledges your comment concerning Measure 3 and has added Measure 3.1 to provide clarity.		
Midwest ISO Stakeholder Collaborators	Yes	Violation Severity Levels: R1, This requirement is based on using a SAT process (creating an Operator Task list and updating that Task list is part of the SAT process). After reviewing the Violation Severity Levels Development Guidelines Criteria developed by the VSL Drafting Team, we believe this requirement could easily be classified as numerical performance. The numerical performance would be calculated based on the number of SAT processes used. The Lower VSL should read "The entity used at least 75%, but less than 100% of the SAT processes in its training program. The Medium VSL should read “The entity used at least 50% but less than 75% processes in its training program. The High VSL should read " The entity used at least 25% but less than 50% SAT processes in its training program. The Severe VSL should read “The entity used less than 25% of the SAT process in its training program. As an alternative, R1 could be classified as multi-component. After reviewing the Violation Severity Levels Development Guidelines Criteria developed by the VSL Drafting Team, we believe R2 can be classified as a numerical performance requirement as well. This requirement is based on the entity verifying that a System Operator can perform the task (list) identified in R1.1. The Lower VSL should read "The entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks.”

Organization	Question 4:	Question 4 Comments:
		The Medium VSL should read "The entity verified at least 80% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks." The High VSL should read "The entity verified at least 70% but less than 80% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks." The Severe VSL should read "The entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company specific reliability related tasks." After reviewing the Violation Severity Levels Development Guidelines Criteria developed by the VSL Drafting Team, we believe R3 can be classified as a numerical performance requirement as well. This requirement is based on System Operators shall have 32 hours of emergency training per year. The written VSL for R3 is based on the number of System Operators not the hourly amount of training per System Operator. So, if we had ten System Operators all with 31 hours of emergency training, we would be in the Severe VSL column. But if we had 10 System Operators, nine with 32 hours, one with zero hours of emergency training, we would be in the Medium VSL column. Thus, even though more total hours of training did not occur the latter example results in a lower severity. The VSLs need to consider the aggregate total of hours of training for all system operators. As one example, R3's VSLs could be rewritten. The LOWER VSL could read "At least one System Operator had less than 32 hours of emergency training but greater than 30 hours. The Medium VSL could read "At least one System Operator had less than 30 hours of emergency training but greater than 28 hours. The High VSL could read "At least one System Operator had less than 28 hours of emergency training but greater than 26 hours. The Severe VSL could read "At least one System Operator had less than 26 hours of emergency training. For another example, one could sum all of the system operators training hours and use a numerical performance VSL. For example, 10 system operators require a total of 320 hours of training. If a total of 240 hours of training is delivered to the 10 system operators, a violation has occurred with only 75% of the training occurring. For these VSLs to be effective, any hours over the minimum 32 hours required would have to be ignored and not considered in the calculation. VSLs for could be written as: The LOWER VSL could read "More than 75% of required training hours were delivered." The Medium VSL could read "More than 50% but 75% or less of the required training hours were delivered." The High VSL could read "More than 25% but 50% or less of the required training hours were delivered."

Organization	Question 4:	Question 4 Comments:
		The Severe VSL could read "25% or less of the required training hours were delivered."
Response: With regards to your comment concerning R1 VSLs, the SPT SDT believes that the intent of the Requirement is to utilize a systematic approach to training for all company-specific reliability-related tasks. Therefore, the SDT does not feel that it would sufficient to measure compliance on the percentage of processes used. Concerning your comment related to R3 VSLs, the SPT SDT believes that the requirement is to provide 32 hours of emergency operations training and to provide less than the 32 hours of training would be insufficient to meet the requirement of the standard.		
firstenergy	Yes	
MidAmerican Energy Company	Yes	
Grant County PUD	Yes	
Cowlitz County PUD No. 1	Yes	
Bonneville Power Administration	Yes	
Arizona Public Service Company	Yes	
E.ON U.S.	Yes	
CECD	Yes	
Salt River Project	Yes	
Xcel Energy	Yes	
Allegheny Power	Yes	
Public Service Commission of South Carolina	Yes	
Baltimore Gas & Electric	Yes	
FirstEnergy	Yes	

5. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Summary Consideration:

The majority of comments received in this section were reiterating concerns identified in earlier questions. There were a few responders with concerns as to data retention being unclear and that the Violation Risk Factors (VRFs) were set too high because the requirements were administrative in nature. Also, a couple of commenters did not understand the distinctions made (under the Compliance Enforcement Authority in the Compliance Monitoring Process) between Reliability Coordinators and other functional entities that work for the Regional Entity and those that do not work for the Regional Entities.

The SPT SDT explained that it agreed the data retention section was unclear and therefore revised it to more accurately reflect either a three year requirement or the last compliance audit, whichever time frame was the greatest and removed each of the sub-sections.

The SPT SDT also explained that based on the existing definitions of the VRFs, the VRFs should not be changed primarily based on the analysis of the August 2003 Blackout which showed that training, or the lack of training, was a significant factor that contributed to the blackout. The VRF Definitions can be found in the NERC Drafting Team Guidelines at (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as in the Reliability Standards Development Procedure Manual.

With regards to the confusion surrounding the Reliability Coordinators and other functional entities that work or are employees of a Region and those that do not work for the Regions, the SPT SDT explained that this distinction was made due to FERC's requirement of NERC to perform audits of the Reliability Coordinators and any registered entities that work for the Regional Entity. There are several regions where this is the case not only concerning the Reliability Coordinator, but other registered entities. This is the situation for example in WECC, where the Reliability Coordinators are employees of WECC and report to the WECC Director of the Reliability Coordinators. In all of these situations, FERC views this as a conflict of interest for the regional entity to perform the compliance audit and therefore NERC would perform compliance audits for these exceptions.

Organization	Question 5 Comments:
FRCC	The proposed effective date of 36 months after the first day of the first calendar quarter following regulatory approval is unnecessarily long. What is the rationale for 36 months? In R1, we would suggest to revise "…..shall update its list of BES company-specific…." to say "…shall review and update if needed it's list of BES company-specific…." In R1.4 it is silent to how often an evaluation of the training program must be conducted but it also appears partially redundant with the annual requirement in R1.1. THey should agree or a time requirement should be in only one place. If the intent was to establish a continuous improvement mechanism, the drafting team should consider directing the responsible entity to establish a monitoring and improvement program that includes an annual review of the task list and then implement it. That may be more clear. R1.3 is really ambiguous. Does it mean that training will have to be provided annually for every single task on the list? Does

Organization	Question 5 Comments:
	it mean every topic, every year? If so, does that make sense? If it is just one time, then it is redundant with R2. Is a long range plan that includes all elements over several years acceptable? Also, if it is training for a new operator, it might not be needed again because it is then performed routinely. This needs clarification. In R2, there is a typo, it should say "each of" instead of "each or". In section 1.3 Data Retention, the subparagraphs should be numbered 1.3.1, 1.3.2 etc rather than 1.4.1, 1.4.2 etc. In these paragraphs it refers only to compliance audits as the time period for keeping records, we assume this means an on-site compliance audit. Since audit periods can vary, ie 3 - 6 years, plus they can happen at other times depending on conditions, it would be more clear to state the retention time in years. We would suggest 3 years to be an appropriate time frame since on-site compliance audits of the RC, BA and TOP are to be at least every 3 years. Also, in the first paragraph of the section "investigation" should be changed to "compliance violation investigation" to avoid confusion with other types of investigations such as disturbance events analysis etc. And, in the last paragraph the Compliance Enforcement Authority should keep records according to the NERC Rules of Procedure. There is no need to spell it out here since it is already covered in the NERC Rules of Procedure. There is not a comment form for PER-004, however a redline is posted as part of the changes in the project. We do have a comment on R2 of PER-004. The last sentence states "The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times." There is no consideration to cost in this requirement. "...best available information at all times." is very broad and wide open. Data overload can be a reality, as can a diminishing return on investments to meet a requirement that will have a very small impact on reliability.
Response: The majority of the industry responding to earlier drafts of this Standard requested a longer phase in period. The SPT SDT responded to their comments and changed the phase in period from 24 months to 36 months. The SPT SDT acknowledges your comment concerning Requirement 1 but believes that the present wording provides for sufficient clarity. Requirement 1.4 has been modified to provide further clarity. Requirement 1.4 now reads “Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an “annual” evaluation of the training program established in R1, to identify any needed changes to the training program and shall implement the changes identified”. Requirement 1.3 simply states that the training developed must be provided to the System Operators. In the development of your training program each entity will determine the periodicity of when training needs to be conducted. The SPT SDT acknowledges your comment concerning the typographical error in Requirement 2. This has been corrected. The SPT SDT acknowledges your comment concerning data retention and has revised this section to more accurately reflect either a three year requirement or the last compliance audit, whichever time frame is the greatest and each of the sub-sections have been removed. The Data Retentions section now reads “Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance, for three years or since its last compliance audit, whichever time frame is the greatest, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation”. The SDT acknowledges your comment concerning the Compliance Enforcement Authority’s requirement to keep records according to the NERC Rules of	

Organization	Question 5 Comments:
Procedure. However, the SDT believes that the paragraph provides clarity for data retention within the standard. The SPT SDT acknowledges your comment concerning PER-004. However, revisions to requirements in other standards, unless specifically associated with this standard, are outside the scope of this Standard Drafting Team.	
Ohio Valley Electric Corporation	With the lack of assessment or evaluation of the effectiveness of existing training programs required by PER-002 R3, why work to create a new training standard? With the lack of such an assessment, the work to develop a new training standard is not a judicious use of limited resources in order to strengthen the reliability of the bulk electric system. The NERC operation certification program already determines that operators possess the minimal requirements to reliably operate the bulk electric system. Why should a training program duplicate the certification process? Currently there is ample incentive to have operators trained on company-specific tasks. An operator who is not capable of performing company specific task will not remain an operator at that company.
Response: The philosophy used to develop this Standard is based on the industry need from the industry approved SAR. The NERC Certification Process or NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific reliability-related tasks). The majority of training in this standard could meet CEH. The lack of system operator training was a contributing factor in the 2003 Blackout.	
Bonneville Power Administration	While agreeing with the proposed Violation Severity Levels, BPA considers the Violation Risk Factor assigned to requirement R1 to be too high. R1 is essentially administrative in nature, and this should be reflected in a VRF rating of Low. There is a tremendous workload involved in developing the training program described by the standard. The 3 year implementation plan proposed by the drafting team is adequate for this task. That said, to implement the training program as described, in a manner that reflects the quality and effectiveness expected by industry participants will require the full 3 years that has been allotted. The implementation time should not be shortened any Further, BPA agrees with the 6 month window for certifying competency in performing a task once a new task has been identified (R2.1). The standard does not provide a window for certifying competency in performing job tasks when a System Operator assumes a new position. BPA suggests providing a 1 year window for System Operators to complete the job task competency verification (R2) once they have assumed a new position.BPA supports a Standard requiring development, delivery, and evaluation of system operator training using a "systematic approach", and applauds the restraint the drafting team has shown by including only the essential elements of a systematic training program. BPA thanks the drafting team for your dedicated concern and efforts to improve our industry by helping entities develop valuable and effective training programs for System Operators.
Response: The SPT SDT believes that based on the existing definitions of the VRFs, the VRFs should not be changed. The analysis of the August 2003 Blackout showed that training, or the lack of training, was a significant factor that contributed to the blackout. The VRF Definitions can be found in the NERC Drafting Team Guidelines at (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as in the Reliability Standards Development Procedure Manual.	
Operating Reliability Working Group (ORWG)	R2 should be corrected to read '...verify each of its System Operator's...'.We feel the VRF for R2 is too high. It should be no higher than medium. As written R3 could be interpreted to require 32 hours of emergency operations training on a simulator. We appreciate the effort by the SDT to incorporate all the suggestions provided by the industry following the last posting. The current standard reflects considerable rewrite and we feel that this proposal is a significant improvement.
Response: The SPT SDT acknowledges your comment concerning the typographical error in Requirement 2. This has been corrected.	

Organization	Question 5 Comments:
The SPT SDT feels that the training associated with R2 concerns reliability related tasks which if not provided could result in a significant impact on the BES. The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee -– to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.	
LCRA	To review, requiring a list of critical tasks, with no explanation as to what those tasks may be, only ensures that there will be a wide variance across the industry. It is not reasonable to expect that each utility will police itself. Common human nature dictates that individual utilities will pare the list down to whatever they can manage, not an all inclusive list. Were this standard to go into effect as currently written, I suspect utilities with large training staffs would have a large list, while small utilities will create a small list that they can manage. Whether or not an operator can perform the duties associated with his position is already handled by company specific procedures like performance reviews. If an operator is NERC certified has not that process already determined that the operator has a basic level of understanding? What happens if an operator fails one of these critical task evaluations? On the one hand he is NERC certified, yet he cannot perform a critical task. Would that then indicate that the certification process is flawed? What exactly is a critical task? What may seem critical and complex to a newly certified operator is old hat to one with 20 years of experience. Reliability related? Taking that term to its extreme limits, the ability to get in a car and drive to work could be construed as reliability related since if the operator cannot get to work reliability is compromised. Nearly everything a transmission operator does is reliability related. Other than eating lunch I cannot think of one single transmission operator task that is not reliability related in some way or another. Voltage control, switching, EECP, blackstart, etc, etc, etc. The list would simply be unmanageable. If NERC cannot effectively define a critical task in this standard, how can anyone else be expected to do so? What happens on an audit if the auditor shows up and decides the list is not comprehensive? Ultimately there is no definition of a critical task, thus this standard cannot be enforced. What about QSEs, generator operators, and field personnel such as relay technicians? They all have multiple tasks that impact reliability, yet I see no requirements for them. What good is a critical task analysis that only focuses on one group when multiple groups have impacts? What this standard would do is create an administrative monster that only the large training staffs could manage. Smaller utilities, such as my own, would be forced to strip the critical task list down as short as possible. Otherwise it could not be effectively managed. The net result would be something that can be managed for audits, not necessarily something that would do training any good. In fact, coupled with the already burdensome demands of the CE program, this requirement would move many trainers away from contact time to sitting at a computer and administering a critical task list. It comes down to this; What does NERC want me to do with my time? Train operators, or fill out paperwork?
Response: As stated previously in our response to comments dated August 15, 2007 only specific tasks that are considered critical to reliability should be considered when developing a task list. The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the	

Organization	Question 5 Comments:
position and the specific system for which the list is being developed. The revised Reference Document associated with the Standard details some topics that could be considered and included in a task list. The philosophy used to develop this Standard is based on the industry need from the industry approved SAR. The NERC Certification Process or NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific reliability-related tasks). As envisioned, much of the training developed and delivered in accordance with this standard could also be used to meet CEH. Note that the Reliability Standards Work Plan does include a project that will address training of others such as Generator Operators.	
Sacramento Municipal Utility District	R# Severe VSL column last row stating: "OR The responsible entity did not include in its emergency training, the use of drills, exercises, and hands on training using simulators." NERC should clarify what is meant by "training using simulators." Is this mandating the use of an OTS? Applicability of this standard should apply to all NERC registration types that impact the BES R2. This requirement should state " shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 annually." Minimum competencies should be maintained by the system operator and certified by the registered entitiy. This standard should mandate the system operator passing an exam/evaluation. R3. This standard should mandate the system operator to pass a written and/or simulation exam to be credited the 32 hours of training
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC SC. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. The philosophy used to develop this Standard is based on the industry need from the industry approved SAR. The applicability was established during the SAR development stage of this process – and is limited to Reliability Coordinators, Transmission Operators and Balancing Authorities.	

Organization	Question 5 Comments:
The SPT SDT acknowledges your comment concerning the wording of Requirement 2 but respectfully disagrees. The SPT SDT believes that with the additional training required (i.e., Emergency Operations, CEH, etc.) and the re-assessment of an operator's capabilities when the task list is modified that an initial one time training assessment is sufficient. However, this does not preclude an entity from performing training or verifications outside this Standard. The SPT SDT believes that mandating a System Operator passing an examination for the training material provided would be too prescriptive. The SPT SDT also believes that a Standard should relate what must be done but not how.	
Northeast Utilities	Is it correct that this standard does not apply to NERC-certified individuals in non-System Operator roles? (reference PER-003 R1.) e.g. - a System Operator's supervisor.R1.1.1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall REVIEW its list of BES company-specific reliability-related tasks performed by its System Operators at least annually to identify new or modified tasks for inclusion in training. One should REVIEW the task list to determine if there is a need to UPDATE - whenever there is a change to the system, procedures, operator tools, etc. TYPO in R2. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each OF (not "or") its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time.
Response: The purpose of this Standard is to ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent to perform those reliability-related tasks. This Standard is applicable to all Reliability Coordinators, Balancing Authorities and Transmission Operators, and focuses specifically on the training of system operators. Therefore, if a supervisor is working as a real-time system operator performing reliability-related tasks then the supervisors would be covered by the training in this Standard. The SPT SDT believes that in order to update a task list it first must be reviewed. Therefore the SPT SDT thanks you for your response but does not feel that a change in the wording is necessary. The SPT SDT acknowledges your comment concerning the typographical error in Requirement 2. This has been corrected.	
NPCC Regional Standards Committee	NPCC members appreciate the efforts of the SDT in creating this latest version. We do not understand the distinctions made (under the Compliance Enforcement Authority in the Compliance Monitoring Process) between RCs and other functional entities that work for the Regional Entity AND those that do not work for the REs. Please provide examples of RCs and functional entities that work for an RE, which, as a standard developer and compliance monitor per the functional model do not have any operating and planning functions that require employing RCs or any other functional entities. However, we do realize that there are REs that are requested by membership in a region through a contractual agreement to perform the RC function for them. In this case, it is the RE that is by contractual arrangement to operate the RC on the membership's behalf, not an employment of an RC by an RE (i.e. an RC working for an RE). If the SDT is referring to this type of set up, please revise the language accordingly. In R3 suggest changing drills, exercises and hands on training using simulators to drills, exercises and hands on training using simulators (if available).
Response: The SPT SDT acknowledges your comment concerning Reliability Coordinators and other functional entities that work or are employees of a Region and those that do not work for the Regions. This distinction was made due to FERC's requirement of NERC to perform audits of the Reliability Coordinators and any registered entities which work of the Region. In WECC, for example, the Reliability Coordinators are employees of WECC and report to the WECC Director of the Reliability Coordinators. FERC views this as a conflict of interest for the regional entity to perform the compliance audit therefore NERC will perform compliance audits for these exceptions. Having provided the above explanation, the SPT SDT realized the existing statements under Section 1.1 Compliance Enforcement Authority, does not cover all exceptions and the section has been revised to more accurately reflect these exceptions.	

Organization	Question 5 Comments:
This section now reads "The ERO or its delegate shall serve as the Compliance Enforcement Authority". The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee -– to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.	
SERC System Operator Subcommittee (SOS) of the SERC Operating Committee	Our group supports the use of a Systematic Approach to Training in the design, development and delivery of effective personnel training programs. However, the lack of clarity in the requirement statements is a cause for some concern. Each requirement in this standard should be re-examined to assure clarity of evidence required, adequate definition of terms, and consistency with the associated measures and violation severity levels.
Response: There are multiple variations of a systematic approach to training. The sub-requirements simply list common elements that are in every systematic approach to training process. The task list is used to identify the necessary training as stated in R1. A systematic approach to training is used to develop the associated training for each task. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the revised Reference Document for this Standard. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html **(3) ADDIE – 1975, Florida State University** http://www.nwlink.com/~donclark/history_isd/addie.html **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf The SPT SDT believes that the present revised wording of the Requirements in this Standard provides for sufficient clarity and consistency.	
MidAmerican Energy Company	The Requirement numbers are not consistent with the wording in other sections. For example the R2.2 references R1.1 but should reference 2.1 This made commenting very difficult.
Response: The SPT SDT acknowledges your comment concerning the inconsistencies described above. This has been corrected.	

Organization	Question 5 Comments:
Cowlitz County PUD No. 1	Typographical error in Requirement 2: "...shall verify each or its System Operators capability..." should read "...shall verify each of its System Operators capability..."
Response: The SPT SDT acknowledges your comment concerning the typographical error in Requirement 2. This has been corrected.	
The Detroit Edison Company	We do not agree with complaints being included in section 1.3 Compliance Monitoring and Enforcement Processes. Compliance audits, Self-Certifications, Spot Checking, Compliance Violation Investigations, and Self-Reporting is adequate to ensure entity compliance. We believe Attachment A: Generic Task List is valuable information and should be included in the PER-005 System Operator Training Reference Document as Reference #3.
Response: The SPT SDT acknowledges your comment concerning complaints being included in the Compliance Monitoring and Enforcement Process section of the Standard but respectfully disagrees. The list of processes in the standard matches the list of processes identified in Section 3 of the Uniform Compliance Monitoring and Enforcement Program. ftp://ftp.nerc.com/pub/sys/all_updl/rop/Appendix4C_Uniform_CMEP_10162007.pdf The Reference Document associated with the Standard details some topics that could be considered and included in a task list.	
SERC OC Standards Review Group (Project 2006-01)	Our group supports the use of a Systematic Approach to Training in the design, development and delivery of effective personnel training programs. However, the lack of clarity in the requirement statements is a cause for some concern. Each requirement in this standard should be re-examined to assure clarity of evidence required, adequate definition of terms, and consistency with the associated measures and violation severity levels. Requirements R1.1 through R1.4 of PER-005 can be interpreted as requiring each entity to develop and deliver its total training program in-house and not allow the use of vendors in developing and implementing its training requirements. For example, R1.3 states, ?Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall deliver the training established in R1.2.?. We suggest that replacing the word ?deliver? with ?make available? or ?ensure delivery of? would clarify this misconception. Finally, in R2 there is a typo: the word ?or? should be changed to ?of?.
Response: There are multiple variations of a systematic approach to training. The sub-requirements simply list common elements that are in every systematic approach to training process. The task list is used to identify the necessary training as stated in R1. A systematic approach to training is used to develop the associated training for each task. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the revised Reference Document for this Standard. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html **(3) ADDIE – 1975, Florida State University** http://www.nwlink.com/~donclark/history_isd/addie.html	

Organization	Question 5 Comments:
(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96 http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf The SPT SDT believes that the present revised wording of the Standard provides for sufficient clarity and consistency. The SPT SDT does not believe that the Standard, as written, precludes the use of contractors for training purposes. A contractor hired to perform these activities performs under the auspices of the entity who hires them. The philosophy used to develop this Standard is based on the industry need from the industry approved SAR. The SPT SDT acknowledges your comment concerning the typographical error in Requirement 2. This has been corrected.	
American Transmission Company	Requirement 1: ? ? The following language should be removed from the requirement 1. ? ? "?to establish a new or modify an existing training program(s)?" ? ? It's our position that the language does not provide any additional clarity but adds confusion to the requirement. ATC believes that the language makes sense for the short term, (FERC approval followed by implementation period) but in the long term this information is unnecessary. Once an entity has a SAT the language in question would require an entity to modify or develop a new program even if neither is required. ? ? Proposed change:? ? "Each RC, BA and TOP shall use a systematic approach to training for the Bulk Electric System (BES) company-specific reliability-related tasks performed by its System Operators."? ? ATC believes that our suggested modification accomplishes the intent of the SDT and addresses our concern with the long-term implementation of this standard.? R1.1? ? The word "create" should be replaced with "document".? ? This change does not alter the intent of the Requirement but simple states what the entities needs to have. ? ? Proposed change: ? ? Each RC, BA and TOP shall document a list of BES company-specific reliability-related tasks performed by its System Operators. ? ? Once the initial list is developed you will no longer create a list, but the proposed language would have entities re-create the list annually. ? ? R1.1.1? ? The requirement should be modified to only require annual reviews. Updates to the list are dependant on the company and are not a NERC issue. ? ? Proposed change: ? ? Each RC, BA and TOP shall annually review its list of BES company-specific reliability-related tasks performed by its System Operators.? ? New Requirement 1.1.2? ? Each RC, BA and TOP shall identify new or modified tasks during the annual review. ? ? R3: ? ? The "12 months" should be replaced with "annual". If the SDT does not agree with the change then they need to confirm how the 12 months is going to be determined. Ultimately ATC is concerned that the 12 months could be interpreted to mean a rolling 12-month period which would make compliance with this standard extremely difficult as it would essentially require a company to ensure that each of its Scots completed 32 hours of emergency training within any 12-month sliding window during the year; i.e. at an average rate of 2.67 hours per month. Typically, this is not how the emergency hour training is completed. Rather, it is completed in ?lumps.? ATC understands that the 12-month concept was introduced to account for new operating personnel. With that in mind, ATC proposes that the Standard call out the provision to pro-rate training specifically as detailed below. ? ? Proposed language: ? ? On an annual basis, each RC, BA and TOP shall provide each of its System Operators with 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics (which includes system restoration). For each new System Operator, the required number of hours of emergency operations training shall be prorated to the nearest whole number of hours based upon the number of full months worked during that calendar year.

Organization	Question 5 Comments:
	(Examples of training: drills, exercises, and hands on training using simulators)? ? The additional changes are to:? Clarify the prorated training requirement; i.e. an operator beginning work on Dec. 31st would have an emergency hour training requirement of 0 hours, an operator beginning work on June 15th would have an emergency hour training requirement of 16 hours and an operator beginning work on Jan. 15th would have an emergency hour training requirement of 30 hours for that calendar year.? 2. Clearly identify the list as examples that can be used but not methods that must be used.
Response: In FERC Order 693 the Commission (FERC) directed NERC to submit a modification to PER-002-0 that "uses the Systematic Approach to Training (SAT) methodology". The intent of the Standard is to require all entities to use a systematic approach to training for either new or existing training programs. The effective date of this standard allows time to modify existing or implement new training programs. The SPT SDT acknowledges your comment regarding the re-wording of Requirement 1 and has modified Requirement 1. Requirement 1 now reads: R1 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. With regards to your comment concerning Requirement 1.1, there is no language in R1.1 that identifies a need to recreate the task list on an annual basis. The SPT SDT did not intend to define the 12 month period for providing emergency operations training. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from annually to every 12 months to allow for the situation of new hires late in the calendar year. This revision was incorporated into Draft 3 of the Standard. The SPT SDT has modified Requirement and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.	
Niagara Mohawk (DBA National Grid)	We propose the following minor edits for clerification.R1.1.1 change to "...shall review and update as necessary its list of BES company specific reliability related tasks...". The task should be reviewed annually and then updated as necessary. In some cases an update may not be needed. R3 Replace "...using training, drills, exercises, and hands on training using simulators" with "using various methods of training such as drills, exercises, classroom presentations, or hands on training using simulators". This reads better since drills, etc. are all forms of training. In addition these need to be examples of training methods not required training methods since some entities do not have training simulators, thus the addition of "or". In addition, we do not understand the distinctions made (under the Compliance Enforcement Authority in the Compliance Monitoring Process) between RCs and other functional entities that work for the Regional Entity AND those that do not work for

Organization	Question 5 Comments:
	the REs. Please provide examples of RCs and functional entities that work for an RE, which, as a standard developer and compliance monitor per the functional model do not have any operating and planning functions that require employing RCs or any other functional entities. However, we do realize that there are REs that are requested by membership in a region through a contractual agreement to perform the RC function for them. In this case, it is the RE that is by contractual arrangement to operate the RC on the membership's behalf, not an employment of an RC by an RE (i.e. an RC working for an RE). If the SDT is referring to this type of set up, please revise the language accordingly.
Response: The SPT SDT acknowledges your comment concerning Requirement 1.1.1 but respectfully disagrees. The SDT believes that the present wording provides sufficient clarity and the suggested changes would not significantly improve or alter the desired outcome of the requirement. The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, ,which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. The SPT SDT acknowledges your comment concerning Reliability Coordinators and other functional entities that work or are employees of a Region and those that do not work for the Regions. This distinction was made due to FERC's requirement of NERC to perform audits of the Reliability Coordinators and any registered entities that work for the Region. One example is WECC - where the Reliability Coordinators are employees of WECC and report to the WECC Director of the Reliability Coordinators. For all of these situations, FERC views this as a conflict of interest for the regional entity to perform the compliance audit therefore NERC will perform compliance audits for these exceptions.	
WECC Reliability Coordination Comments Work Group (RCCWG)	The WECC RCCWG believes that R2 in PER-004-2 is mis-placed and does not belong in a standard that covers staffing. Specific requirements for SOLs, IROLs, and inter-tie facility limits belong in IRO standards, not in a PER standard.
Response: The SPT SDT acknowledges your comment concerning PER-004. However, revisions to requirements in other standards, unless specifically addressed within this standard, are outside the scope of this Standard Drafting Team.	
PSEI	I appears that the ideas going into this standard are designed such that it can only be achieved by large organizations with not only a trainer, but training staff and lots of resources. Putting requirements in place that demand all organizations meet the same expectations as the larger ones is unfair, unrealistic and removes any flexibility small utilities have. If there is such a need for the SAT to be in place, use it in conjunction with the System Operator Certification program. There is already a detailed process in place for this and allows smaller utilities to have options other than hiring more staff or requiring the purchase of simulators.
Response: The SPT SDT does not believe that the Standard, as written, precludes the use of contractors for training purposes. A contractor hired to perform these activities performs under the auspices of the entity who hires them. The philosophy used to develop this Standard is based on the industry need from the industry approved SAR.	

Organization	Question 5 Comments:
The NERC Certification Process or NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific reliability-related tasks). As envisioned, much of the training developed and delivered in accordance with this standard could also be used to meet CEH. The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 “Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.	
Southwest Power Pool - Operations Training Working Group	R1.2 - The wording of R1.2 should refer to "utilizing designed training materials" with learning objectives based on the task list, rather than "designing training materials" with learning objectives based on the task list. Some training is purchased from vendors to satisfy training need rather than designing the training in-house. We suggest the wording be modified as follows: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall utilize training materials designed and developed with learning objectives that are based on the task list created in R1.1." R2 Risk Factor - The "Risk Factor" should be "Medium" in-line with the risk factor of R1. The risk factor to verify performance of the reliability tasks (R2) should not be higher than the risk factor for identifying the reliability tasks (R1). R3 - This requirement requires all entities large or small to have a simulator or buy hands on simulator exercises from a vendor "that applies to their system". We believe the word simulator should be changed to "simulation" as follows: "??.using training, drills, exercises, and hands on training using simulations". The related VSLs would need the word changed also. If the intent of the standard is for the individual entity to purchase a computerized simulator package, it could be quite burdensome on the company. R3.1 - To assure R3.1 is in aligned with our comments on R1.2, based on the fact that some training may be purchased training delivered by a vendor, we suggest rewording of R3.1. Change the word "deliver" to the word "utilize" as follows: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall utilize the training established in R1.2." A suggested Reliability Task List should be included in the reference material to the standard as a base guideline for entities to build their task list.

Organization	Question 5 Comments:
	Purpose: We feel the words "competent" and "competency" in the purpose statement should be changed to "capable" and "capability" to reflect the wording in M2. We appreciate the effort by the SDT to incorporate all the suggestions provided by the industry following the last posting. The current standard reflects considerable rewrite and we feel that this proposal is a significant improvement.
Response: The SPT SDT acknowledges your comment concerning Requirement 1.2 but respectfully disagrees. The SDT believes that the present wording provides sufficient clarity and the suggested changes would not significantly improve or alter the desired outcome of the requirement. The SDT also does not believe that the Standard, as written, precludes the use of contractors for training purposes. A contractor hired to perform these activities performs under the auspices of the entity who hires them. The philosophy used to develop this Standard is based on the industry need from the industry approved SAR. The SPT SDT believes that based on the existing definitions of the VRFs, the VRFs should not be changed. The analysis of the August 2003 Blackout showed that training, or the lack of training, was a significant factor that contributed to the blackout. The VRF Definitions can be found in the NERC Drafting Team Guidelines at (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as in the Reliability Standards Development Procedure Manual. The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. The revised Reference Document associated with the Standard details some topics that could be considered and included in a task list. The SPT SDT acknowledges your comment regarding the use of the terms competent and competency but does not believe that changing the words would significantly improve or alter the desired outcome of the requirement. In addition, the “Purpose” section of this standard is taken from the industry approved SAR.	
CECD	It is not appropriate to require all BAs and TOPs to have hands on simulator training. FERC’s directives indicated that "the ERO needed to develop a requirement for the use of simulators dependent on the entity's role and size" and that it would be appropriate to limit such a requirement to RCs, TOPs, and BAs that have operational control over a significant portion of load and generation.” There is an error in R2, second line "each or its System Operator's". Delete "or its".

Organization	Question 5 Comments:
	R3. The phrase "that reflects emergency operations topics" should be modified to state "on emergency operation topics" or "that reflects emergency operating conditions."
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. The SPT SDT acknowledges your comment concerning the typographical error in Requirement 2. This has been corrected. The SPT SDT acknowledges your comment concerning Requirement 3 but respectfully disagrees. The SDT believes that the present wording provides sufficient clarity and the suggested changes would not significantly improve or alter the desired outcome of the requirement.	
PJM Interconnection, LLC	Since one of the elements of the SAT methodology is to "Evaluate not only worker performance of the objectives, but also the ability of the curriculum to meet the stated objectives", R2 is unnecessary, as R1 already requires the use of the SAT methodology. This requirement should be deleted.
Response: The SPT SDT agrees with you that the evaluation process addresses both elements in a systematic approach to training. However, based on previous comments from the industry, the SDT felt it was important to delineate the difference between individual performance and the evaluation of the curriculum.	
Pacific Gas and Electric Company	In reviewing the purpose statement the words "competent" and "competency" do not align with wording in the requirements or the measures. We believe competency of an individual is directly reflected in their performance and therefore performance is governed by their supervisor or manager. In many instances trainers provide training to individuals on a limited basis throughout the year, of which, during that time the individual's performance in assessed for his capability to perform a task. We suggest changing the purpose statement to the following: "To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are capable to perform those reliability-related tasks." "The capability of the System Operators is critical to the reliability of the North American Bulk Electric System."
Response: The SPT SDT acknowledges your comment regarding the use of the terms competent and competency but does not believe that changing the words would significantly improve or alter the desired outcome of the requirement. In addition, the “Purpose” section of this standard is taken from the industry approved SAR.	
MRO NERC Standards Review Subcommittee	In R2, the current language could be read that the System Operator needs to be capable of performing the task at least one time, but the intent is to perform the verification at least one time. This can be clarified by rearranging the sentence to be "?shall verify at least one time that each of its System Operator's are capable of performing each task identified in R1.1." R3, There seems to be some confusion in the industry about what would be classified as a simulator per this requirement. The

Organization	Question 5 Comments:
	definition of the term simulator can range from a simulator attached to the EMS, a custom built simulator to represent one's utility structure, a generic simulator similar to the one that EPRI had offered for no cost in the past, table top simulations or even computer class simulations that qualify as simulation hours in the NERC CEH program. In paragraph 1391 of FERC order 693, FERC recognizes the fact that it would be impractical for small entities to develop and maintain full-scale simulators and suggests that the small entities use generic simulators or realistic table top exercises in there place. FERC goes on in paragraph 1391 to direct the ERO "to develop a requirement for the use of simulators dependent on the entity's role and size". The MRO requests that the SDT define what it means by 'simulator' and "who should use this simulator" and revise the requirement as appropriate to meet the FERC 693 directives. R3, The Requirement states '.....32 hours of emergency operations training applicable to its organization that reflects emergency operations topics (which includes system restoration) using training, drills, exercises, and hands on training using simulators.' Is this requirement setup to require each operator to have at least some simulator training every 12 months, or is the requirement only providing a list of training options? The MRO requests clarification on this requirement. Data Retention: Does 1.4.4 say that if someone is found non-compliant they only have to keep records until they are found to be compliant? This goes against the previous three paragraphs. This could be corrected if "or since the last compliance audit, which ever is greater." is added to the end of the sentence.? Risk Factors: ? ? R1, should be changed to "Lower Risk Factor", since it is administrative in nature, per NERC Reliability Standards Development Procedure. If an entity had the first four steps to the SAT process but an incomplete Evaluation, this would not "affect the electrical state or capability of the bulk power system".

Response: The SPT SDT acknowledges your comment concerning Requirement 2 but respectfully disagrees. The SDT believes that the present wording provides sufficient clarity and the suggested changes would not significantly improve or alter the desired outcome of the requirement.

The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. . The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read:

> R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel.
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> > R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

The SPT SDT acknowledges your comment concerning data retention and has revised this section to more accurately reflect either a three year requirement or the last compliance audit, whichever time frame is the greatest and each of the sub-sections have been removed. The Data Retentions section now reads "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance, for three years or since its last compliance audit, whichever time frame is the greatest, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period

Organization	Question 5 Comments:
of time as part of an investigation". The SPT SDT believes that based on the existing definitions of the VRFs, the VRFs should not be changed. The analysis of the August 2003 Blackout showed that training, or the lack of training, was a significant factor that contributed to the blackout. The VRF Definitions can be found in the NERC Drafting Team Guidelines at (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as in the Reliability Standards Development Procedure Manual.	
Public Service Commission of South Carolina	On Page 1 of 2 of Implementation Plan for PER-005-1 - System Personnel Training, strike the word "months" under PER-005-1 Requirements in the box for R3.
Response: The SPT SDT acknowledges your comment and has made the necessary modifications.	
WECC Operations Training Subcommittee	The definition of Bulk Power vs. Bulk Electric System needs to be clearly defined in order to be utilized as a basis for the standards with respect to systems that the RRO has defined as not affecting the BES.
Response: The defining of the term Bulk Electric System (BES) is outside the scope of this Drafting Team. The definition is found in either the NERC Glossary or is defined by the individual Region.	
ISO New England Inc.	We do not understand the distinctions made (under the Compliance Enforcement Authority in the Compliance Monitoring Process) between RCs and other functional entities that work for the Regional Entity AND those that do not work for the REs. Please provide examples of RCs and functional entities that work for an RE, which, as a standard developer and compliance monitor per the functional model do not have any operating and planning functions that require employing RCs or any other functional entities. In R3 suggest changing drills, exercises and hands on training using simulators to drills, exercises and hands on training using simulators (if available).
Response: The SPT SDT acknowledges your comment concerning Reliability Coordinators and other functional entities that work or are employees of a Region and those that do not work for the Regions. This distinction was made due to FERC's requirement of NERC to perform audits of any registered entities which work for the Region. In WECC, for example, the Reliability Coordinators are employees of WECC and report to the WECC Director of the Reliability Coordinators. For all of these situations, FERC views this as a conflict of interest for the regional entity to perform the compliance audit therefore NERC will perform compliance audits for these exceptions. The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. . The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.	
Entergy Services, Inc. System Planning & Operations (Generation & Marketing)	It appears that only the Requirement (R1, R2, R3) have VRFs and VSLs. Do the VRFs and VSLs apply to the sub-requirements and can an entity be penalized for the requirement and the sub-requirement? (e.g. if an entity does not create the list required in R1.1 will they receive a penalty for R1 and R1.1?)Regarding PER-004-2 R2 - the requirement does not belong in a RC "staffing" standard. This general statement requirement is adequately covered in the IRO-005 standard and should be deleted as part of

Organization	Question 5 Comments:
	this revision or a future revision/review of IRO-005.
Response: The present methodology being used in the Standard Drafting Process requires VRFs to be associated with a Requirement. Sub-requirements will not have an associated VRF. VSLs are assigned to each Requirement and cover the sub-requirements. The Sanctions Guidelines Section 3.10 includes the following: Strictly speaking, NERC or the regional entity can determine and levy a separate penalty or sanction, or direct remedial action, upon a violator for each individual violation. However, in instances of multiple violations related to a single act or common incidence of noncompliance, NERC or the regional entity will generally determine and issue a single aggregate penalty, sanction, or remedial action directive bearing reasonable relationship to the aggregate of the related violations. The penalty, sanction, or remedial action will not be that determined individually for the least serious of the violations; it will generally be at least as large or expansive as what would be called for individually for the most serious of the violations. As stated in the Implementation Plan associated with this Standard, PER-004-2 Requirement 2 will be retired when this Standard becomes effective.	
AEP	R1.2 - The wording of R1.2 should refer to "utilizing designed training materials" with learning objectives based on the task list, rather than "designing training materials" with learning objectives based on the task list. Some training is purchased from vendors to satisfy training need rather than designing the training in-house. We suggest the wording be modified as follows: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall utilize training materials designed and developed with learning objectives that are based on the task list created in R1.1. "R2 Risk Factor - The "Risk Factor" should be "Medium" in-line with the risk factor of R1. The risk factor to verify performance of the reliability tasks (R2) should not be higher than the risk factor for identifying the reliability tasks (R1). R2.1 - We believe this requirement should specify 12months (rather than 6 months) for performance verification following identification of new or modified tasks. Often, tasks change or are modified gradually do to operator adaptation of influencing parameters. Therefore operators often adapt to the task modification without formal training, and well before the task is updated in the list. Annual review of the task list (specified in R1.1.1) will likely set the stage for the needed annual training on the tasks, whether modified, new, or existing tasks just needing improvement in operator performance. The continuing education training plan is typically scheduled annually targeting operator training needs including certification maintenance training and emergency training. Consequently it would be best to schedule new and modified task training along with the operator's annually scheduled CE training. Specifically R2.1 should read: "Within twelve months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority, and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks". R3 - This requirement could be interpreted to require all entities large or small to have a simulator or buy hands on simulator exercises from a vendor "that applies to their system". We believe the word simulator should be changed to "simulation" as follows: "??.using training, drills, exercises, and hands on training using simulations". The related VSLs would need the word changed also. R3.1 - To assure R3.1 is in aligned with our comments on R1.2, based on the fact that some training may be purchased training delivered by a vendor, we suggest rewording of R3.1 change the word "deliver" to the word "utilize" as follows: "Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall utilize the training established in R1.2. "Purpose - In item 3 of the Introduction to the Standard "Purpose", the word "competent" should be changed to "capable" to align with Measurement M2. Specifically ?. "To ensure that System Operators performing real-time, reliability-related tasks on the

Organization	Question 5 Comments:
	North American Bulk Electric System (BES) are "capable" to perform those reliability related tasks. The Reliability Task List (previously attached to draft 2) should be included with the reference material that can be referenced for the standard, such as along with the references for the systematic approach to training (ADDIE, DOE references, etc.). We appreciate the effort by the SDT to incorporate all the suggestions provided by the industry following the last posting. The current standard reflects considerable rewrite and we feel that this proposal is a significant improvement.

Response: The SPT SDT does not believe that the Standard, as written, precludes the use of contractors for training purposes. A contractor hired to perform these activities performs under the auspices of the entity who hires them.

The SPT SDT believes that based on the existing definitions of the VRFs, the VRFs should not be changed. The analysis of the August 2003 Blackout showed that training, or the lack of training, was a significant factor that contributed to the blackout. The VRF Definitions can be found in the NERC Drafting Team Guidelines at (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as in the Reliability Standards Development Procedure Manual.

The SPT SDT acknowledges your comment concerning training associated with an update of the training program but respectfully disagrees. The SDT believes that an update of the training program will typically will require modifications or additions of a few items and is not as extensive as implementing a new training program. This is something that can be accomplished within a six month window. In addition, the NERC Certification Process or NERC Continuing Education (CE) Program is not a part of this standard. The standard applies to all reliability-related training, not just NERC CE approved activities. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., company specific reliability-related tasks). The majority of training in this standard could meet CEH.

The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read:

> R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel.
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> > R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

The SPT SDT acknowledges your comment regarding the use of the terms competent and competency but does not believe that changing the words would significantly improve or alter the desired outcome of the requirement. In addition, the “Purpose” section of this standard is taken from the industry approved SAR.

The revised Reference Document associated with the Standard details some topics that could be considered and included in a task list.

Organization	Question 5 Comments:
ERCOT Inc.	The requirements say to create a task list and develop objectives and materials based on that list. This could be burdensome, and doesn't have to happen if the SAT process if followed. Objectives and materials should only required on tasks identified for training, before that training is conducted, not every task performed before any training is conducted.? ?In meeting R2, the entity may determine that their operators need no training on the tasks in their list. R1.2 (which we recommend goes away) requires development of objectives and training materials regardless of need. R1.3 (which we also recommend go away) requires they deliver training on those objectives and materials. Therefore there actually would be a justifiable argument that under almost any SAT process, R1.2 and R1.3 could be considered to be an unnecessary and unreasonable burden until an organization would have to replace an operator with an ignorant, off-the-street individual; an unlikely scenario for many.? ?Arbitrarily creating such requirements flies in the face of any SAT process.? ?Even if the entity changes something about a task(s), it is very possible that R2.1 can be accomplished with no ?formal? training.? ? On R3: If the SAT process is believed, then the 32 hour emergency training requirement is bogus. The 32 hour requirement was instigated as an interim act in the absence of an organizational SAT process for System Operators. ? ?If NERC is going to continue to specify topics and times, then don't preen and pretend to advocate the SAT process. The old guide has a list of topics, and the PSS can certainly apply their expertise to assign times; this would simplify the process for the whole industry. Of course this would be mostly for show, but then so is the 32 hour requirement.? Now let's look at the Purpose of PER-005. That should be changed. It should read: "To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent." The words "The competency of System Operators is critical to the reliability of the North American Bulk Electric System." is an observation, not a purpose.
Response: The SPT SDT agrees that a systematic approach to training does not require the development of a task list. The task list is a tool that can be used to identify the necessary training as stated in R1. A systematic approach to training is then used to develop the associated training for each task. This is needed to cover new hires. It would be difficult to determine, in advance, on which tasks a new hire will need to be trained. The philosophy used to develop this Standard is based on the industry need from the industry approved SAR. The revised Reference Document associated with the Standard details some topics that could be considered and included in a task list. The SPT SDT acknowledges your comment regarding the Purpose section of the standard. The "Purpose" section of this standard is taken from the industry approved SAR.	
We Energies	R2: Typographical error "...shall verify each OF its System Operator's... "R3: The phrase"...using training, drills, exercises, and hands on training using simulators." is reasonably interpreted as "...using training and drills and exercises and hands on training using simulators." This phrase needs to be reworded. Data Retention 1.4.4: 1.4.1, 1.4.2, and 1.4.3 reference a requirement and measure. Should this one also reference requirements and measures?
Response: The SPT SDT acknowledges your comment concerning the typographical error in Requirement 2. This has been corrected.	

Organization	Question 5 Comments:
The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - - to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel"; R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. The SPT SDT acknowledges your comment concerning the Data Retention section of the standard. The Data Retention section has been modified to provide clarity.	
Santee Cooper	Clarity should be provided in the requirements that training can be provided through the use of vendors or in-house as long as the SAT process is utilized. In addition, the training standard needs to be written such that a smaller entity is able to comply with the standard without employing the use of vendors or consultants.
Response: The SPT SDT does not believe that the Standard, as written, precludes the use of contractors for training purposes. A contractor hired to perform these activities performs under the auspices of the entity who hires them. The philosophy used to develop this Standard is based on the industry need from the industry approved SAR.	
BCTC	The definition of Bulk Power System vs. Bulk Electric System needs to be clearly defined in order to be utilized as a basis for the standards. Until the BES vs. BPS issue is cleared up this should not be used as a basis for Standards.
Response: The defining of the term Bulk Electric System (BES) is outside the scope of this Drafting Team – and since the standard only uses the term, "Bulk Electric System" there should be no confusion in this standard. The definition of BES is found in the NERC Glossary and is defined by the individual Region.	
Pepco Holdings, Inc. - Affiliates	We are concerned that this standard does not address the specific directions of FERC Order 693 to include local control centers that can take independent actions, in this standard. We think the standard should be revised to include a new Requirement 4: R4. Each Reliability Coordinator, Balancing Authority, and Transmission Operator that delegates tasks for which it is responsible to another entity shall develop or modify an existing training program using a systematic approach to training for the set of tasks it has delegated to other entities.[Risk Factor: Medium] [Time Horizon: Long-term Planning] R4.1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator who has developed a training program for its delegated tasks shall ensure through a monitoring program that the training program for the delegated tasks meets the equivalent requirements of R2 and R3 of this standard R4.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator who has delegated tasks for which it responsible shall maintain a list of the entities to whom tasks have been delegated and of the tasks that have been delegated and provide the list to its Regional Entity.

Organization	Question 5 Comments:
	M4. Each RC, BA, and TOP shall have available a training program for its delegated tasks developed through a systematic approach to training. M4.1 Each RC, BA and TOP shall have evidence that the training program for its delegated tasks meets the equivalent of R2 and R3. M4.2 Each RC, BA and TOP shall have evidence that it provided to its Regional Entity the list of the entities to which it has delegated tasks and the delegated tasks.
Response: In previous drafts of this standard the industry has consistently agreed that Local Control Centers should not be applicable to this Standard until a universal definition of the term "Local Control Center" has been established. The SPT SDT has developed this Standard based on the Functional Model Version 3 and the current registration process. Additionally, the philosophy used to develop this Standard is based on the industry need from the industry approved SAR.	
Baltimore Gas & Electric	We recommend that NERC provide industry training on the development of a training program and include detailed instructions on "a systematic approach to training", how to compile a "list of BES company-specific reliability-related tasks", explain expectable verification methods for "System Operator's capabilities to perform each assigned task", etc.
Response: The SPT SDT has modified the Implementation Plan to include industry training on the use of a systematic approach to training. Additional information can be found in the revised Reference Document associated with this Standard and through the following links. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html **(3) ADDIE – 1975, Florida State University** http://www.nwlink.com/~donclark/history_isd/addie.html **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf	
New York Independent System Operator	Regarding R3 "using training, drills, exercises and hands-on training?" can actually be just "training". "Drills, exercises and hands on" are methods of training that can be used and remove the corresponding Severe VSL. Replace six months with 30 days.
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - - to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read:	

Organization	Question 5 Comments:
R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. The determination of the Violation severity Level (VSL) is based on the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing VSLs to provide a more consistent application when determining VSLs. This document is a product developed jointly by the stakeholder drafting teams and SMEs, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel. The SPT SDT has considered your comment, but the VSL will remain as presently written. The SPT SDT believes that reducing the six month re-verification window of Requirement 2.1 to a 30 day window would be too burdensome on an entity due to the shift schedules associated with a System Operators work environment.	
FirstEnergy	FE has the following additional comments/suggestions: R3 - The last part of this requirement, "? (which includes system restoration) using training, drills, exercises, and hands on training using simulators.", may be both confusing and not all inclusive. The following is an explanation of our concerns:(a) The phrase in parenthesis "which includes system restoration" seems to only capture one of the several important emergency operations topics. We feel that it should either be removed, or expanded to include the other important topics which include "Capacity and Energy Emergencies" and "Load shedding". (b) The phrase "using training, drills, exercises, and hands on training using simulators" may be confusing and a couple of the terms are not clearly defined. We are not sure of the meaning and differences in the terms "drills" and "exercises". At the very least, we believe these terms could be combined into one subset of the required training. Also, for better clarity, we think these subsets of the training should be bulleted under R3. We suggest rewording R3 as follows:R3. At least every 12 months each Reliability Coordinator, Balancing Authority, and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics using all of the following [Risk Factor: Medium] [Time Horizon: Long-term Planning]:- classroom training- drills and/or exercises- hands on training using simulators.
Response: The SPT SDT is not targeting just system restoration in Requirement 3. There are other topics that could be used but the training must include system restoration. Emergency operation training topics, that could be included, are also listed in the revised Reference Document associated with this Standard. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with	

Organization	Question 5 Comments:
established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.	
Duke Energy Corporation	Requirements of this standard should be revised to reflect that training may be developed and delivered by a third party under contract.
Response: The SPT SDT does not believe that the Standard, as written, precludes the use of contractors for training purposes. A contractor hired to perform these activities performs under the auspices of the entity who hires them. The philosophy used to develop this Standard is based on the industry need from the industry approved SAR.	
Ontario IESO	(1) We do not understand the distinctions made (under the Compliance Enforcement Authority in the Compliance Monitoring Process) between RCs and other functional entities that work for the Regional Entity AND those that do not work for the REs. Please provide examples of RCs and functional entities that work for an RE, which, as a standard developer and compliance monitor per the functional model do not have any operating and planning functions that require employing RCs or any other functional entities. However, we do realize that there are REs that are requested by membership in a region through a contractual agreement to perform the RC function for them. In this case, it is the RE that is by contractual arrangement to operate the RC on the membership's behalf, not an employment of an RC by an RE (i.e. an RC working for an RE). If the SDT is referring to this type of set up, please revise the language accordingly.
Response: The SPT SDT acknowledges your comment concerning Reliability Coordinators and other functional entities that work or are employees of a Region and those that do not work for the Regions. This distinction was made due to FERC's requirement of NERC to perform audits of any registered entities which work of the Region. In WECC, for example the Reliability Coordinators are employees of WECC and report to the WECC Director of the Reliability Coordinators. For all of these situations, FERC views this as a conflict of interest for the regional entity to perform the compliance audit therefore NERC will perform compliance audits for these exceptions. The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee - - to comply with one of the directives, the standard needs to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant potion of load and generation. The SPT SDT has modified Requirement 3 and added Requirement 3.1 to provide clarity. Requirement 3 and Requirement 3.1 now read: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, ,which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations shall provide each system operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.	
Allegheny Power	No Additional comments

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Standards Announcement

Comment Period Opens
June 18–July 17, 2008

Now available at: http://www.nerc.com/~filez/standards/System-Personnel-Training.html

Comment Period for Project 2006-01 — System Personnel Training Standard Opens June 18, 2008
The System Personnel Training Standard Drafting Team has posted its fourth draft of PER-005-1 — System Personnel Training (Project 2006-01) along with an implementation plan, and a reference to aid in implementing the standard for a 30-day comment period from June 18 through July 17, 2008.

The purpose of the standard is to help ensure that that System Operators performing real-time, reliability-related tasks on the North American bulk electric system are competent to perform those reliability-related tasks. The proposed standard is applicable to Reliability Coordinators, Balancing Authorities, and Transmission Operators.

Please use this electronic comment form to submit comments on the fourth draft of PER-005-1 by **July 17, 2008**.

If you need an off-line, unofficial copy of the questions in the comment form, there is a copy of the comment form posted at the following site:

http://www.nerc.com/~filez/standards/System-Personnel-Training.html

Please use only the electronic form to submit comments by July 17, 2008. If you experience any difficulties in using the electronic form, please contact Barbara Bogenrief at 609-452-8060.

Standards Development Process
The *Reliability Standards Development Procedure Manual* contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

For more information or assistance, please contact Maureen Long, Standards Process Manager, at maureen.long@nerc.net or at (813) 468-5998.

North American Electric Reliability Corporation
116-390 Village Blvd.
Princeton, NJ 08540
609.452.8060 | www.nerc.com

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. Standards Committee approves SAR for posting on December 1, 2004.
2. SAR Drafting Team posted SAR for comments on December 7, 2004.
3. SAR Drafting Team responds to comments, revises SAR, and posts revised SAR for comments on February 17, 2006.
4. SAR Drafting Team responds to comments and revises SAR on May 15, 2006.
5. Standards Committee approves development of Standard on May 15, 2006.
6. The Standards Committee appointed the Standard Drafting Team on June 21, 2006.
7. Standards Drafting Team posted draft standard for comment on September 27, 2006.
8. Standards Drafting Team responded to comments and posted the revised standard on August 15, 2007.
9. Standard Drafting Team responded to comments and posted the revised standard for comment on February 15, 2008.
10. Standards Drafting Team responded to comments and posted the revised standard for comment on June 9, 2008.

Proposed Action Plan and Description of Current Draft:

This is the fourth posting of the proposed standard and its associated implementation plan for a 30-day comment period, from June 18, 2008 to July 17, 2008.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments and post a fourth revised standard, implementation plan and reference document for a 30-day comment period.	June 18, 2008
2. Respond to comments on the fourth draft of the proposed standard.	July 21, 2008
3. Obtain the Standards Committee's approval to move the standard forward to balloting.	September 15, 2008
4. Post the standard and implementation plan for a 30-day pre-ballot review.	September 22, 2008
5. Conduct an initial ballot for ten days.	October 22, 2008
6. Respond to comments submitted with the initial ballot.	November 1, 2008

7. Conduct a recirculation ballot for ten days.	November 11, 2008
8. Post for a 30-day preview for board.	November 21, 2008
9. BOT adoption.	December 22, 2008

A. Introduction

1. Title: **System Personnel Training**

2. Number: PER-005-1

3. Purpose: To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent to perform those reliability-related tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.

4. Applicability:

4.1. Functional Entities:

4.1.1 Reliability Coordinator.

4.1.2 Balancing Authority.

4.1.3 Transmission Operator.

5. Proposed Effective Date for Regulatory Approvals:

5.1. Requirement R1 and Requirement R2 become effective 24 months after the first day of the first calendar quarter following applicable regulatory approval, or in those jurisdictions where no regulatory approval is required, these requirements becomes effective 24 months after the first day of the first calendar quarter after Board of Trustee adoption.

5.2. Requirement R3 is presently in effect and will remain in effect upon approval of this Standard.

5.3. Requirement R3.1 becomes effective 36 months after the first day of the first calendar quarter following applicable regulatory approval, or in those jurisdictions where no regulatory approval is required, the subrequirement becomes effective 36 months after the first day of the first calendar quarter after Board of Trustee adoption.

B. Requirements

R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. *[Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall create a list of BES company-specific reliability-related tasks performed by its System Operators.

R1.1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall update its list of BES company-specific reliability-related tasks performed by its System Operators at least annually to identify new or modified tasks for inclusion in training.

R1.2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall design and develop learning objectives and training materials based on the task list created in R1.1.

R1.3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall deliver the training established in R1.2.

R1.4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of the training program established in R1, to identify any needed changes to the training program and shall implement the changes identified.

R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time. *[Risk Factor: High] [Time Horizon: Long-term Planning]*

R2.1. Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks.

R3. At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. *[Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R3.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

C. Measures

M1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence of using a systematic approach to training to establish and implement a training program, as specified in R1.

M1.1 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its company-specific reliability-related task list, with the date of the last revision, as specified in R1.1.

M1.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and training materials, as specified in R1.2.

M1.3 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection System Operator training records showing the names of the people trained, the title of the training delivered and the dates of delivery to show that it delivered the training, as specified in R1.3.

M1.4 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence (such as instructor observations, trainee feedback, supervisor feedback, course evaluations, learning assessments, or internal audit results) that it performed an annual training program evaluation, as specified in R1.4.

M2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence to show that it verified that each of its System Operators is capable of performing each assigned task identified in R1.1, as specified in R2. This evidence can be documents such as training records showing successful completion of tasks with the

employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments.

M3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator has obtained 32 hours of emergency operations training, as specified in R3.

M3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator received emergency operations training using simulation technology, as specified in R3.1.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

1.2. Compliance Monitoring Period and Reset

Not Applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance for three years or since its last compliance audit, whichever time frame is the greatest, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.

If a Reliability Coordinator, Balancing Authority or Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1	None	The responsible entity failed to provide evidence that it updated its company-specific reliability-related tasks to identify new or modified tasks on an annual basis (R1.1.1) OR The responsible entity failed to provide evidence of evaluating its training program to identify needed changes to its training program(s).(R1.4)	The responsible entity failed to design and develop learning objectives and training materials based on the BES company specific reliability related tasks (when developing a new or modifying an existing training program). (R1.2)	When developing a new or modifying an existing training program, the responsible entity failed to prepare a company-specific reliability-related tasks (R1.1) OR When developing a new or modifying an existing training program the responsible entity failed to deliver training based on the BES company specific reliability related tasks. (R1.3)
R2	None	The responsible entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)	The responsible entity verified at least 70% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2) OR The responsible entity failed to verify its system operator's capabilities to perform each new or modified task within six months of making a modification to its BES company-specific reliability related tasks. (R2.1)	The responsible entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)
R3	None	The responsible entity provided at least 32	The responsible entity provided at	The responsible entity provided 32

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
		hours of emergency operations training to at least 90% but less than 100% of their System Operators. (R3)	least 32 hours of emergency operations training to at least 70% but less than 90% of its System Operators. (R3)	hours of emergency operations training to less than 70% of its System Operators (R3) OR The responsible entity did not include simulation technology replicating the operational behavior of the BES in its emergency operations training. (R3.1)

E. Regional Variances

None.

Version History

Version	Date	Action	Change Tracking

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. Standards Committee approves SAR for posting on December 1, 2004.
2. SAR Drafting Team posted SAR for comments on December 7, 2004.
3. SAR Drafting Team responds to comments, revises SAR, and posts revised SAR for comments on February 17, 2006.
4. SAR Drafting Team responds to comments and revises SAR on May 15, 2006.
5. Standards Committee approves development of Standard on May 15, 2006.
6. The Standards Authorization Committee appointed the Standard Drafting Team on June 21, 2006.
7. Standards Drafting Team posted draft standard for comment on September 27, 2006.
8. Standards Drafting Team responded to comments and posted the revised standard on August 15, 2007.
9. Standard Drafting Team responded to comments and posted the revised standard for comment on February 15, 2008.
10. Standards Drafting Team responded to comments and posted the revised standard for comment on June 9, 2008.

Proposed Action Plan and Description of Current Draft:

This is the fourth posting of the proposed standard and its associated implementation plan for a 30-day comment period, from June ~~16~~18, 2008 to July ~~15~~17, 2008.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments and post a fourth revised standard, implementation plan and reference document for a 30-day comment period.	June 18, 2008
2. Respond to comments on the fourth draft of the proposed standard.	July 21, 2008
3. Obtain the Standards Committee's approval to move the standard forward to balloting.	September 15, 2008
4. Post the standard and implementation plan for a 30-day pre-ballot review.	September 22, 2008
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6. Respond to comments submitted with the initial ballot.	November 1, 2008
7. Conduct a recirculation ballot for ten days.	November 11, 2008
8. Post for a 30-day preview for board.	November 21, 2008
9. BOT adoption.	December 22, 2008

A. Introduction

1. Title: **System Personnel Training**

2. Number: PER-005-1

3. Purpose: To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent to perform those reliability-related tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.

4. Applicability:

4.1. Functional Entities:

4.1.1 Reliability Coordinator.

4.1.2 Balancing Authority.

4.1.3 Transmission Operator.

5. Proposed Effective Date for Regulatory Approvals:

5.1. Requirement R1 and Requirement R2 becomes ~~s~~ e~~E~~ffective 24~~36~~ months after the first day of the first calendar quarter following applicable regulatory approval, or in those jurisdictions where no regulatory approval is required, these ~~Reliability Standard~~ requirements becomes effective 24~~36~~ months after the first day of the first calendar quarter after Board of Trustee adoption.

5.2. Requirement R3 is presently in effect and will remain in effect upon approval of this Standard.

5.3. Requirement R3.1 becomes effective 36 months after the first day of the first calendar quarter following applicable regulatory approval, or in those jurisdictions where no regulatory approval is required, the ~~Reliability Standard~~subrequirement becomes effective 36 months after the first day of the first calendar quarter after Board of Trustee adoption.

B. Requirements

R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a ~~new or modify an existing~~ training program~~(s)~~ for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. *[Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall create a list of BES company-specific reliability-related tasks performed by its System Operators.

R1.1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall update its list of BES company-specific reliability-related tasks performed by its System Operators at least annually to identify new or modified tasks for inclusion in training.

R1.2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall design and develop learning objectives and training materials based on the task list created in R1.1.

R1.3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall deliver the training established in R1.2.

R1.4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of the training program established in R1, to identify any needed changes to the training program and shall implement the changes identified.

R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time. *[Risk Factor: High] [Time Horizon: Long-term Planning]*

R2.1. Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks.

R3. At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, (which includes system restoration) using training, drills, exercises or other training required to maintain qualified personnel, which could include simulationsand hands on training using simulators. *[Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R3.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational or direct authority or control over fFacilities with established IROLs or haves established operating guides or protection systems to mitigate IROL violations shall provide each sSystem oOperator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

C. Measures

M1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence of using a systematic approach to training to establish a and implement anew or modify an existing training program(s) and evidence of implementation, as specified in R1.

M1.1 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its company-specific reliability-related task list, with the date of the last revision, as specified in R1.1.

M1.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and training materials, as specified in R1.2.

M1.3 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection System Operator training records showing the names of the people trained, the title of the training delivered and the dates of delivery to show that it delivered the training, as specified in R1.3.

M1.4 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence (such as instructor observations, trainee feedback, , supervisor feedback, course evaluations, learning assessments, or internal audit results) that it performed an annual training program evaluation, as specified in R1.4.

M2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence to show that it verified that each of its System Operators is

capable of performing each assigned task identified in R1.1, as specified in R2. This evidence can be documents such as training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments.

M3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator has obtained 32 hours of emergency operations training, as specified in R3.

M3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator received emergency operations training using simulation technology~~simulation training~~, as specified in R3.1.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

1.2. Compliance Monitoring Period and Reset

Not Applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance for three years or since its last compliance audit, whichever time frame is the greatest, ~~, as identified below,~~ unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.~~:~~

1.4.1 ~~Each Reliability Coordinator, Balancing Authority and Transmission Operator shall retain its current company-specific task list and any supporting learning objectives and course outlines, training records, and evaluation records since its last compliance audit for Requirement 1, Measure 1.~~

~~1.4.2 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall retain training records for each of its System Operators since the last compliance audit for Requirement 2, Measure 2.~~

1.4.3 ~~Each Reliability Coordinator, Balancing Authority and Transmission Operator shall retain training records for each of its System Operators since the last compliance audit for Requirement 3, Measure 3.~~

1.4.4 If a Reliability Coordinator, Balancing Authority ~~and~~ or Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

R#	Lower VSL	~~Medium~~ Moderate VSL	High VSL	Severe VSL
R1	None	The responsible entity failed to provide evidence that it updated its company-specific reliability-related tasks to identify new or modified tasks on an annual basis (R1.1.1) OR The responsible entity failed to provide evidence of evaluating its training program ~~effectiveness~~ to identify needed changes to its training program(s). (R1.4)	The responsible entity failed to design and develop learning objectives and training materials based on the BES company specific reliability related task~~s list~~ (when developing a new or modifying an existing training program). (R1.2)	When developing a new or modifying an existing training program, the responsible entity failed to prepare a company-specific reliability-related task~~s list~~ (R1.1) OR When developing a new or modifying an existing training program the responsible entity failed to deliver training based on the BES company specific reliability related task~~s list~~. (R1.3)
R2	None	The responsible entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)	The responsible entity verified at least 70% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2) OR The responsible	The responsible entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)

R#	Lower VSL	~~Medium~~ Moderate VSL	High VSL	Severe VSL
			entity failed to verify its system operator's capabilities to perform each new or modified task within six months of making a modification to its BES company-specific reliability related task~~s list~~. (R2.1)	
R3	None	The responsible entity provided at least 32 hours of emergency operations training to at least 90% but less than 100% of their System Operators. (R3)	The responsible entity provided at least 32 hours of emergency operations training to at least 70% but less than 90% of its System Operators. (R3)	The responsible entity provided 32 hours of emergency operations training to less than 70% of its System Operators (R3) OR The ~~required~~ responsible entity did not include simulation technology replicating the operational behavior of the BES ~~in its emergency training, the use of drills, exercises, and hands-on training using simulators~~in its emergency operations training. (R3.1)

E. Regional Variances

None.

Version History

Version	Date	Action	Change Tracking

A. Introduction

1. Title: **Reliability Coordination — Staffing**

2. Number: PER-004-2

3. Purpose:

Reliability Coordinators must have sufficient, competent staff to perform the Reliability Coordinator functions.

4. Applicability

4.1. Reliability Coordinators.

5. Proposed Effective Date:

- Requirements 2, 3, 4, and 5 retired when PER-005-1 becomes effective

B. Requirements

R1. Each Reliability Coordinator shall be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

R2. Reliability Coordinator operating personnel shall place particular attention on SOLs and IROLs and inter-tie facility limits. The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times.

C. Measures

None.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

Each Reliability Coordinator shall keep evidence of compliance for the previous two calendar years plus the current year.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

1.4. Additional Compliance Information

None.

The VSL SDT developed VSLs for this standard to replace the Levels of Non-compliance

2. Levels of Non-Compliance for a Reliability Coordinator

2.1. Level 1: Not applicable.

2.2. Level 2: Not applicable.

2.3. Level 3: Not applicable.

2.4. Level 4:

E. Regional Differences

1. None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised

A. Introduction

1. **Title:** **Reliability Coordination — Staffing**

2. **Number:** PER-004-~~1~~2

3. **Purpose:**

   Reliability Coordinators must have sufficient, competent staff to perform the Reliability Coordinator functions.

4. **Applicability**

   4.1. Reliability Coordinators.

5. **Proposed Effective Date:** ~~January 1, 2007~~

   - Requirements 2, 3, 4, and 5 retired when PER-005-1 becomes effective

B. Requirements

R1. Each Reliability Coordinator shall be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

~~**R2.**All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.~~

~~**R3.**Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.~~

~~**R4.**Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.~~

~~**R5.**~~**R2.** Reliability Coordinator operating personnel shall place particular attention on SOLs and IROLs and inter-tie facility limits. The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times.

C. Measures

None

~~**M1.**The Reliability Coordinator shall have and provide upon request training records that confirm that each of its operating personnel has completed a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel, as specified in Requirement 2.~~

~~**M2.**Each Reliability Coordinator shall have and provide upon request evidence that could include but is not limited to, a documented training program and individual training records for each of its operating personnel or other equivalent evidence that will be used to confirm that it meets Requirements 3 and 4.~~

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

Each Reliability Coordinator shall keep evidence of compliance for the previous two calendar years plus the current year.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

1.4. Additional Compliance Information

None.

The VSL SDT developed VSLs for this standard to replace the Levels of Non-compliance

2. Levels of Non-Compliance for a Reliability Coordinator

~~To be developed~~

2.1. Level 1: Not applicable.

2.2. Level 2: Not applicable.

2.3. Level 3: Not applicable.

2.4. Level 4: ~~There shall be a separate Level 4 non-compliance, for every one of the following requirements that is in violation:~~

~~**2.4.1**One or more of its shift operating personnel did not complete a minimum of five days per year of training and drills using realistic simulations of system emergencies in the past year. (R2)~~

~~**2.4.2**No evidence operating personnel have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas. (R3)~~

~~**2.4.3**No evidence operating personnel have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area. (R4)~~

E. Regional Differences

1. None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed "Proposed" from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised

The SPT SDT recommends that this entire standard be retired when PER-005 becomes effective.

A. Introduction

1. **Title:** **Operating Personnel Training**

2. **Number:** PER-002-0

3. **Purpose:** Each Transmission Operator and Balancing Authority must provide their personnel with a coordinated training program that will ensure reliable system operation.

4. **Applicability**

   4.1. Balancing Authority.

   4.2. Transmission Operator.

5. **Effective Date:** April 1, 2005

B. Requirements

R1. Each Transmission Operator and Balancing Authority shall be staffed with adequately trained operating personnel.

R2. Each Transmission Operator and Balancing Authority shall have a training program for all operating personnel that are in:

R2.1. Positions that have the primary responsibility, either directly or through communications with others, for the real-time operation of the interconnected Bulk Electric System.

R2.2. Positions directly responsible for complying with NERC standards.

R3. For personnel identified in Requirement R2, the Transmission Operator and Balancing Authority shall provide a training program meeting the following criteria:

R3.1. A set of training program objectives must be defined, based on NERC and Regional Reliability Organization standards, entity operating procedures, and applicable regulatory requirements. These objectives shall reference the knowledge and competencies needed to apply those standards, procedures, and requirements to normal, emergency, and restoration conditions for the Transmission Operator and Balancing Authority operating positions.

R3.2. The training program must include a plan for the initial and continuing training of Transmission Operator and Balancing Authority operating personnel. That plan shall address knowledge and competencies required for reliable system operations.

R3.3. The training program must include training time for all Transmission Operator and Balancing Authority operating personnel to ensure their operating proficiency.

R3.4. Training staff must be identified, and the staff must be competent in both knowledge of system operations and instructional capabilities.

R4. For personnel identified in Requirement R2, each Transmission Operator and Balancing Authority shall provide its operating personnel at least five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.

C. Measures

M1. The Transmission Operator and Balancing Authority operating personnel training program shall be reviewed to ensure that it is designed to promote reliable system operations.

D. Compliance

1. Compliance Monitoring Process

Periodic Review: The Regional Reliability Organization will conduct an on-site review of the Transmission Operator and Balancing Authority operating personnel training program every three years. The operating personnel training records will be reviewed and assessed compared to the program curriculum.

1.1. Compliance Monitoring Responsibility

Self-certification: The Transmission Operator and Balancing Authority will annually provide a self-certification based on Requirements R1 through R4.

1.2. Compliance Monitoring Period and Reset Timeframe

One calendar year.

1.3. Data Retention

Three years.

1.4. Additional Compliance Information

Not specified.

2. Levels of Non-Compliance

2.1. Level 1: N/A.

2.2. Level 2: The Transmission Operator or Balancing Authority operating personnel training program does not address all elements of Requirement R3.

2.3. Level 3: The Transmission Operator or Balancing Authority operating personnel training program does not address Requirement R4.

2.4. Level 4: A Transmission Operator or Balancing Authority has not provided a training program for its operating personnel.

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Proposed Effective Date	Errata

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Implementation Plan for PER-005-1 – System Personnel Training

Prerequisite Approvals

There are no other reliability standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this standard can be implemented.

Modified Standards

PER-002-0 should be retired when PER-005-0 becomes effective.

PER-004-1 Requirements 2, 3 and 4 should be retired when PER-005-1 becomes effective.

The following tables summarize the mapping of the PER-004-1 requirements to PER-005-1 and other standard requirements:

PER-004-1 Requirement	PER-005-1 Requirements
R2. All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.	R3. At least every 12 months, each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each System Operator with at least 32 hours of emergency operations training applicable to its organization that reflect emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. Note: PER-005-1 R3 includes PER-004-1 R2 and therefore PER-004-1 R2 should be retired. (Note that the five days per year of training has been clarified to mean 32 hours of training.)
R3. Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use e a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each task identified in R1.1 at least one time.

PER-004-1 Requirement	PER-005-1 Requirements
	Note: The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R2) duplicate PER-004-1 R3 and therefore PER-004-1 R3 should be retired.
R4. Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each task identified in R1.1 at least one time. Note: The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R3) duplicate PER-004-1 R4 and therefore PER-004-1 R4 should be removed.

A red-line version of PER-004-1 is posted with this Implementation Plan.

Compliance with Standards

Once this standard becomes effective, the responsible entities identified in the applicability section of the standard must comply with the requirements. These include:

- Reliability Coordinators
- Balancing Authorities
- Transmission Operators

Proposed Effective Date

Compliance with PER-005 shall be implemented over a three-year period, as follows:

- Requirement R1 and Requirement R2 become effective 24 months after the first day of the first quarter following regulatory approval or, in those jurisdictions where regulatory approval is not required, these requirements otherwise becomes effective 24 months after the first day of the first quarter after Board of Trustee adoption.
- Requirement R3 is presently in effect and will remain in effect upon approval of this Standard.
- Requirement R3.1 becomes effective 36 months after the first day of the first calendar quarter following applicable regulatory approval, or in those jurisdictions where no regulatory approval is required; this subrequirement becomes effective 36 months after the first day of the first calendar quarter after Board of Trustee adoption.

Training

- The SPT SDT will provide training on the use of a systematic approach to training, either in conjunction with a NERC workshop or independent PER-005 training, dependent on the preference of the industry.

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Implementation Plan for PER-005-1 – System Personnel Training

Prerequisite Approvals

There are no other reliability standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this standard can be implemented.

Modified Standards

PER-002-0 should be retired when PER-005-0 becomes effective.

PER-004-1 Requirements 2, 3 and 4 should be retired when PER-005-1 becomes effective.

The following tables summarize the mapping of the PER-004-1 requirements to PER-005-1 and other standard requirements:

PER-004-1 Requirement	PER-005-1 Requirements
R2. All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.	R3. At least every 12 months, each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each System Operator with at least 32 hours ~~months~~ of emergency operations training applicable to its organization that reflect emergency operations topics ~~(~~, which includes system restoration~~)~~ using ~~training,~~ drills, exercises ~~and hands on training using simulators.~~ or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. Note: PER-005-1 R3 includes PER-004-1 R2 and therefore PER-004-1 R2 should be retired. (Note that the five days per year of training has been clarified to mean 32 hours of training.)
R3. Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall ~~complet~~use e a systematic approach to training to establish a ~~new or modify an existing~~ training program~~(s)~~ for the ~~Bulk Electric System (~~BES~~)~~ company-specific reliability-related tasks performed by its System Operators and shall implement the program. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System

PER-004-1 Requirement	PER-005-1 Requirements
	Operator's ~~capability~~ capabilities to perform each task identified in R1.1 at least one time. Note: The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R2) duplicate PER-004-1 R3 and therefore PER-004-1 R3 should be retired.
R4. Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall ~~complete~~use a systematic approach to training to establish a ~~new or modify an existing~~ training program~~(s)~~ for the ~~Bulk Electric System (~~BES~~)~~ company-specific reliability-related tasks performed by its System Operators and shall implement the program. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's ~~capability~~ capabilities to perform each task identified in R1.1 at least one time. Note: The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R3) duplicate PER-004-1 R4 and therefore PER-004-1 R4 should be removed.

Red~~A red~~-line versions of PER-002-0 and PER-004-1 are~~is~~ posted with this Implementation Plan.

Compliance with Standards

Once this standard becomes effective, the responsible entities identified in the applicability section of the standard must comply with the requirements. These include:

- Reliability Coordinators
- Balancing Authorities
- Transmission Operators

Proposed Effective Date

Compliance with PER-005 shall be implemented over a three-year period, as follows:

- Requirement ~~1, Requirement 2,~~R1 and Requirement ~~3 shall~~R2 become effective ~~36~~24 months after the first day of the first quarter following regulatory approval or, in those jurisdictions where regulatory approval is not required, ~~the Reliability Standard~~these requirements otherwise becomes effective 24 months after the first day of the first quarter after Board of Trustee adoption.
- Requirement R3 is presently in effect and will remain in effect upon approval of this Standard.
- Requirement R3.1 becomes effective 36 months after the first day of the first calendar quarter following applicable regulatory approval, or in those jurisdictions where no regulatory approval is ~~required,~~required; this subrequirement becomes effective 36 months after the first day of the first calendar quarter after Board of Trustee adoption.

Training

- The SPT SDT will provide training on the use of a systematic approach to training, either in conjunction with a NERC workshop or independent PER-005 training, dependent on the preference of the industry.

PER-005 System Personnel Training
Reference Document

Reference #1: Determining Task Performance Requirements

The purpose of this reference is to provide guidance in writing a performance standard that describes the desired outcome of a task. A standard for acceptable performance should be in either measurable or observable terms.

Clear standards of performance are necessary for an individual to know when he or she has completed the task and to ensure agreement between employees and their supervisors on the objective of a task. Performance standards answer the following questions:

How timely must the task be performed?

Or

How accurately must the task be performed?

Or

With what quality must it be performed?

Or

What response from the customer must be accomplished?

When a performance standard is quantifiable, successful performance is more easily demonstrated. For example, in the following task statement, the criteria for successful performance is to return system loading to within normal operating limits, which is a number that can be easily verified.

> Given a System Operating Limit violation on the transmission system, implement the correct procedure for the circumstances to mitigate loading to within normal operating limits.

Even when the outcome of a task cannot be measured as a number, it may still be observable. The next example contains performance criteria that is qualitative in nature, that is, it can be verified as either correct or not, but does not involve a numerical result.

> Given a tag submitted for scheduling, ensure that all transmission rights are assigned to the tag per the company Tariff and in compliance with NERC and NAESB standards.

Reference #2: Systematic Approach to Training References:

The following list of hyperlinks identifies references for the NERC Standard PER-005 to assist with the application of a systematic approach to training:

(1) DOE-HDBK-1078-94, A Systematic Approach to Training
http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf

(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910
http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html

(3) ADDIE – 1975, Florida State University
http://www.nwlink.com/~donclark/history_isd/addie.html

(4) DOE Standard - Table-Top Needs Analysis
DOE-HDBK-1103-96
http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf

Reference #3: Normal and Emergency Operations Topics

These topics are identified as meeting the topic criteria for normal and emergency operations training per Requirement 1 and Requirement 3 of this standard.

A. Recognition and Response to System Emergencies

1. Emergency drills and responses
2. Communication tools, protocols, coordination
3. Operating from backup control centers
4. System operations during unstudied situations
5. System Protection
6. Geomagnetic disturbances weather impacts on system operations
7. System Monitoring – voltage, equipment loading
8. Real-time contingency analysis
9. Offline system analysis tools
10. Monitoring backup plans
11. Sabotage, physical, and cyber threats and responses

B. Operating Policies and Standards Related to Emergency Operations

1. NERC standards that identify emergency operations practices (e.g. EOP Standards)
2. Regional reliability operating policies
3. Sub-regional policies and procedures
4. ISO/RTO policies and procedures

C. Power System Restoration Philosophy and Practices

1. Black start
2. Interconnection of islands – building islands
3. Load shedding – automatic (under-frequency and under-voltage) and manual
4. Load restoration philosophies

D. Interconnected Power System Operations

1. Operations coordination
2. Special protections systems
3. Special operating guides
4. Voltage and reactive control, including responding to eminent voltage collapse
5. Understanding the concepts of Interconnection Reliability Operating Limits versus System Operating Limits
6. DC tie operations and procedures during system emergencies
7. Thermal and dynamic limits
8. Unscheduled flow mitigation − congestion management
9. Local and regional line loading procedures
10. Radial load and generation operations and procedures
11. Tie line operations
12. E-tagging and Interchange Scheduling
13. Generating unit operating characteristics and limits, especially regarding reactive capabilities and the relationship between real and reactive output

E. Technologies and Tools

1. Forecasting tools
2. Power system study tools
3. Interchange Distribution Calculator (IDC)

F. Market Operations as They Relate to Emergency Operations

1. Market rules
2. Locational Marginal Pricing (LMP)
3. Transmission rights
4. OASIS
5. Tariffs
6. Fuel management
7. Real-time, hour-ahead and day-ahead tools

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Comment Form for System Personnel Training Standard Draft 4

Please use this form to submit comments on the draft System Personnel Training standard. Comments must be submitted by **July 17, 2008.** If you have questions please contact **Darrel Richardson** at Darrel.Richardson@nerc.net or by telephone at 609-613-1848.

Background Information:

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric Systems.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The System Personnel Training Standard Drafting Team would like to receive industry comments on this standard.

You do not have to answer all questions. Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The System Personnel Training standard drafting team (SPT SDT) revised the effective dates for this Standard to provide for a shorter period for implementation of the training program while allowing for a longer implementation period for implementing the use of training simulation/simulators. Do you agree that the revised effective dates provide for sufficient time to establish a training program, as specified in R1? If not, please explain in the comment area.

☐ Yes
☐ No

Comments:

2. The SPT SDT revised R1 to provide clarity and eliminate the ambiguity concerning the training program to be established. R1 now reads:

> "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program."

Do you agree that the revised language now clearly defines the training program to be developed? If not, please explain in the comment area.

☐ Yes
☐ No

Comments:

3. The SPT SDT revised R3 and added R3.1 to provide clarity in the types of training that can be utilized and the entities that must use simulation/simulator training in their emergency operations training. Do you agree that this requirement now clearly describes the types of training that can be utilized as well as the entities that must provide simulation/simulator training in its emergency operations training? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

4. The SPT SDT modified the Data Retention section of this Standard to provide clarity:

> "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance, for three years or since its last compliance audit, whichever time frame is the greatest, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation."

Do you agree that this Standard now clearly defines the period for which compliance records must be kept? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

5. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:

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Consideration of Comments on 4th Draft of System Personnel Training Standard — Project 2006-01

The System Personnel Training Standards Drafting Team thanks all commenters who submitted comments on revisions for the 4th draft of the System Personnel Training standard. These standards were posted for a 30-day public comment period from June 18, 2008 through July 17, 2009. The stakeholders were asked to provide feedback on the standard through a special electronic Standard Comment Form. There were more than 41 sets of comments, including comments from more than 140 different people from approximately 70 companies representing 8 of the 10 Industry Segments as shown in the table on the following pages.

http://www.nerc.com/~filez/standards/System-Personnel-Training.html

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Gerry Adamski, at 609-452-8060 or at gerry.adamski@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Reliability Standards Development Procedures: http://www.nerc.com/standards/newstandardsprocess.html.

Index to Questions, Comments, and Responses

The Industry Segments are:

1 — Transmission Owners
2 — RTOs, ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 – Regional Reliability Organizations, Regional Entities

<table>
<tr><th>Name</th><th>Organization</th><th>RBB Segment</th><th></th></tr>
<tr><td>Denise Koehn</td><td>Bonneville Power Administration</td><td>1 - Transmission Owners, 3 - Load-serving Entities, 5 - Electric Generators, 6 - Electicity Brokers, Aggregators</td><td>
<table>
<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th></tr>
<tr><td>1.</td><td>Richard Ellison</td><td>Transmission Dispatch</td><td>WECC</td><td>1</td></tr>
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<tr><td>Bob Ritzman</td><td>NorthWestern Corporation</td><td>1 - Transmission Owners</td><td></td></tr>
<tr><td>Mike Clime</td><td>Ameren</td><td>1 - Transmission Owners, 3 - Load-serving Entities, 5 - Electric Generators</td><td></td></tr>
<tr><td>Guy Zito</td><td>NPCC</td><td>10 - Regional Reliability Organization/Regional Entity</td><td>
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<tr><td>1.</td><td>Ed Thompson</td><td>Consolidated Edison Co. of New York, Inc.</td><td>NPCC</td><td>1</td></tr>
<tr><td>2.</td><td>David Kiguel</td><td>Hydro One Networks Inc.</td><td>NPCC</td><td>1</td></tr>
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Name	Organization	RBB Segment					
				3.	Sylvain Clermont	Hydro-Quebec TransEnergie	NPCC	1
				4.	Frederick White	Northeast Utilities	NPCC	1
				5.	Roger Champagne	Hydro-Quebec TransEnergie	NPCC	2
				6.	Ron Falsetti	Independent Electricity System Operator	NPCC	2
				7.	Kathleen Goodman	ISO - New England	NPCC	2
				8.	Randy MacDonald	New Brunswick System Operator	NPCC	2
				9.	Gregory Campoli	New York Independent System Operator	NPCC	2
				10.	Michael Ranalli	National Grid	NPCC	3
				11.	Ronald E. Hart	Dominion Resources, Inc.	NPCC	5
				12.	Ralph Rufrano	New York Power Authority	NPCC	5
				13.	Brian L. Gooder	Ontario Power Generation Incorporated	NPCC	5
				14.	Michael Gildea	Constellation Energy	NPCC	6
				15.	Brian D. Evans-Mongeon	Utility Services	NPCC	6
				16.	Donald E. Nelson	Massachusetts Dept. of Public Utilities	NPCC	9
				17.	Brian Hogue	NPCC	NPCC	10

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<tr><td>18.</td><td>Alan Adamson</td><td>New York State Reliability Council</td><td>NPCC</td><td>10</td></tr>
<tr><td>19.</td><td>Guy Zito</td><td>NPCC</td><td>NPCC</td><td>10</td></tr>
<tr><td>20.</td><td>Lee Pedowicz</td><td>NPCC</td><td>NPCC</td><td>10</td></tr>
<tr><td>21.</td><td>Gerry Dunbar</td><td>NPCC</td><td>NPCC</td><td>10</td></tr>
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<tr><td>Glen Boyle</td><td>PJM Interconnection</td><td>2 - RTOs and ISOs</td><td>
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<tr><td>1.</td><td>Mike Sitarchyk</td><td></td><td></td></tr>
<tr><td>2.</td><td>Tom Moleski</td><td></td><td></td></tr>
<tr><td>3.</td><td>Frank Koza</td><td></td><td></td></tr>
<tr><td>4.</td><td>Al DiCaprio</td><td></td><td></td></tr>
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<tr><td>Tim Loepker</td><td>Seattle City Light</td><td>Not Applicable</td><td></td></tr>
<tr><td>Roman Carter</td><td>Southern Company Transmission</td><td>3 - Load-serving Entities, 1 - Transmission Owners</td><td>
<table>
<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th></tr>
<tr><td>1.</td><td>Jim Busbin</td><td>Southern Transmission</td><td>SERC 1</td></tr>
<tr><td>2.</td><td>Fred Waites</td><td>Alabama Power</td><td>SERC 3</td></tr>
<tr><td>3.</td><td>Rocky Williamson</td><td>Georgia Power</td><td>SERC 3</td></tr>
<tr><td>4.</td><td>Marc Butts</td><td>Southern Transmission</td><td>SERC 1</td></tr>
<tr><td>5.</td><td>JT Wood</td><td>Southern Transmission</td><td>SERC 1</td></tr>
<tr><td>6.</td><td>James Ford</td><td>Southern Transmission</td><td>SERC 1</td></tr>
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<tr><td>Michael Scott</td><td>Arizona Public Service Company</td><td>1 - Transmission Owners</td><td></td></tr>
<tr><td>Kris Manchur</td><td>Manitoba Hydro</td><td>1 - Transmission Owners, 3 - Load-serving Entities, 6 - Electicity Brokers, Aggregators , 5 - Electric Generators</td><td></td></tr>
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<tr><th>Name</th><th>Organization</th><th>RBB Segment</th><th></th></tr>
<tr><td>Brian S. Dunsmore</td><td>Wapa (Loveland, Co)</td><td>5 - Electric Generators, 9 - Federal, State, Provincial Regulatory, or other Government Entities, 10 - Regional Reliability Organization/Regional Entity, 3 - Load-serving Entities, 1 - Transmission Owners</td><td></td></tr>
<tr><td>Richard Kafka</td><td>Pepco Holdings, Inc. - Affiliates</td><td>3 - Load-serving Entities, 1 - Transmission Owners</td><td>
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<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th></tr>
<tr><td>1.</td><td>Valerie Hildebrand</td><td>Potomac Electric Power Co</td><td>RFC</td><td>1</td></tr>
<tr><td>2.</td><td>Vic Davis</td><td>Delmarva Power & Light</td><td>RFC</td><td>1</td></tr>
<tr><td>3.</td><td>Brian Clark</td><td>Delmarva Power & Light</td><td>RFC</td><td>3</td></tr>
</table>
</td></tr>
<tr><td>Richard Kinas</td><td>Orlando Utilities Commission</td><td>1 - Transmission Owners, 6 - Electicity Brokers, Aggregators , 5 - Electric Generators, 3 - Load-serving Entities</td><td></td></tr>
<tr><td>Brent Ingebrigtson</td><td>E.ON U.S. LLC</td><td>6 - Electicity Brokers, Aggregators , 5 - Electric Generators, 3 - Load-serving Entities, 1 - Transmission Owners</td><td></td></tr>
<tr><td>Linda Perez</td><td>WECC Reliability Coordination</td><td>10 - Regional Reliability</td><td></td></tr>
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<tr><th>Name</th><th>Organization</th><th>RBB Segment</th><th></th></tr>
<tr><td></td><td>Comment Working Group</td><td>Organization/Regional Entity</td><td></td></tr>
<tr><td>Margaret Stambach</td><td>SERC Standards Review Group</td><td>10 - Regional Reliability Organization/Regional Entity</td><td>
<table>
<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th><th></th></tr>
<tr><td>1.</td><td>John Neagle</td><td>AECI</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>2.</td><td>Alan Jones</td><td>Alcoa</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>3.</td><td>Charles Wear</td><td>Alcoa</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>4.</td><td>Mike Clime</td><td>Ameren</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>5.</td><td>Robert Thomasson</td><td>Big Rivers</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>6.</td><td>Mark D. Brown</td><td>Entergy Transmission</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>7.</td><td>Phillip Jarreau</td><td>Entergy Generation</td><td>SERC</td><td>5, 6</td></tr>
<tr><td>8.</td><td>Brian Haggard</td><td>GSOC</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>9.</td><td>Paul Turner</td><td>GSOC</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>10.</td><td>Charlie Deleon</td><td>NRG Energy</td><td>SERC</td><td>1, 3, 4</td></tr>
<tr><td>11.</td><td>Tim Hattaway</td><td>PowerSouth</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>12.</td><td>Bill Thigpen</td><td>PowerSouth</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>13.</td><td>Kristi Boland</td><td>Santee Cooper</td><td>SERC</td><td>1, 3, 9</td></tr>
<tr><td>14.</td><td>Rene Free</td><td>Santee Cooper</td><td>SERC</td><td>1, 3, 9</td></tr>
<tr><td>15.</td><td>Glenn Stephens</td><td>Santee Cooper</td><td>SERC</td><td>1, 3, 9</td></tr>
<tr><td>16.</td><td>Steve Hebert</td><td>SCE&G</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>17.</td><td>Steve Orr</td><td>SCE&G</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>18.</td><td>Charles Evans</td><td>SMEPA</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>19.</td><td>Dan Kay</td><td>SMEPA</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>20.</td><td>Steve McElhaney</td><td>SMEPA</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>21.</td><td>James Ford</td><td>Southern Company</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>22.</td><td>Edd Forsythe</td><td>TVA</td><td>SERC</td><td>1, 3, 9</td></tr>
<tr><td>23.</td><td>Rocky Roberts</td><td>TVA</td><td>SERC</td><td>1, 3, 9</td></tr>
<tr><td>24.</td><td>John Troha</td><td>SERC Reliability Corp.</td><td>SERC</td><td>10</td></tr>
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<tr><td>Tim</td><td>PowerSouth</td><td>3 - Load-serving</td><td></td></tr>
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Name	Organization	RBB Segment	
Hattaway	Energy Cooperative	Entities, 5 - Electric Generators, 4 - Transmission-dependent Utilities	
Todd Lietz	PSEI	1 - Transmission Owners	
Donna Howard	FRCC System Operator Subcommittee	10 - Regional Reliability Organization/Regional Entity, 5 - Electric Generators, 3 - Load-serving Entities, 4 - Transmission-dependent Utilities, 1 - Transmission Owners	
Kristie Cocco	SRP	1 - Transmission Owners, 5 - Electric Generators, 6 - Electicity Brokers, Aggregators , 3 - Load-serving Entities	
Alessia Dawes	Hydro One Networks	1 - Transmission Owners, 3 - Load-serving Entities	
Will Franklin	Entergy - System Planning & Operation (Generation)	6 - Electicity Brokers, Aggregators	

Additional Member	Additional Organization	Region	Segment Selection	
1.	Steve Joseph	Tampa Electric Company	FRCC	3
2.	Alan Gale	City of Tallahassee	FRCC	5
3.	Charles Wubbena	Seminole Electric Cooperative	FRCC	4
4.	Curtis Lloyd	Progress Energy Florida	FRCC	3
5.	Jeff Gooding	Florida Power & Light Company	FRCC	1
6.	Jimmy McDougald	Lee County Electric Cooperative	FRCC	NA

Additional Member	Additional Organization	Region	Segment Selection	
1.	Phillip Jarreau	Entergy SPO (Generatin)	SERC	NA
2.	Margaret Hebert	Entergy SPO (Generation)	SERC	NA
3.	David Plant	Entergy SPO (Generation)	SERC	NA

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<tr><td>4.</td><td>Joel Plessinger</td><td>Entergy SPO (Generation)</td><td>SERC</td><td>NA</td></tr>
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<tr><td>Brad Calhoun</td><td>CenterPoint Energy</td><td>1 - Transmission Owners</td><td></td></tr>
<tr><td>George Brady</td><td>Ohio Valley Electric Corporation</td><td>1 - Transmission Owners</td><td>
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<tr><td>1.</td><td>Scott Cunningham</td><td>Ohio Valley Electric Corporation</td><td>RFC</td><td>1</td></tr>
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</td></tr>
<tr><td>Alan Gale</td><td>City Of Tallahassee (TAL)</td><td>3 - Load-serving Entities, 5 - Electric Generators, 1 - Transmission Owners</td><td></td></tr>
<tr><td>Thomas Fung</td><td>BCTC</td><td>2 - RTOs and ISOs</td><td></td></tr>
<tr><td>Albert DiCaprio</td><td>ISO/RTO Council - Standards Review Committee</td><td>2 - RTOs and ISOs</td><td></td></tr>
<tr><td>Lauri Jones</td><td>WECC Operations Training Subcommittee</td><td>1 - Transmission Owners, 3 - Load-serving Entities, 10 - Regional Reliability Organization/Regional Entity</td><td>
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<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th></tr>
<tr><td>1.</td><td>Rod Byrnell</td><td>BCTC</td><td>WECC</td><td>1</td></tr>
<tr><td>2.</td><td>Richard Krajewski</td><td>PNM</td><td>WECC</td><td>1, 3</td></tr>
<tr><td>3.</td><td>Brian Reich</td><td>IPCO</td><td>WECC</td><td>1, 3</td></tr>
<tr><td>4.</td><td>Dick Schwarz</td><td>PNSC</td><td>WECC</td><td>10</td></tr>
<tr><td>5.</td><td>Warren Maxvill</td><td>AVA</td><td>WECC</td><td>1, 3</td></tr>
<tr><td>6.</td><td>Hank LuBean</td><td>DOPD</td><td>WECC</td><td>1, 3</td></tr>
<tr><td>7.</td><td>Robert Eubank</td><td>WECC</td><td>WECC</td><td>10</td></tr>
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<tr><td>Joe DePoorter</td><td>MRO NSRS</td><td>6 - Electicity Brokers, Aggregators , 3 -</td><td>
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Name	Organization	RBB Segment	
		Load-serving Entities, 4 - Transmission-dependent Utilities, 5 - Electric Generators	1. Carol Gerou — Minnesota Power — MRO — 1, 3, 5, 6 2. Ken Goldsmith — Alliant Energy — MRO — 4 3. Pam Sordet — Xcel Energy — MRO — 1, 3, 5, 6 4. Tom Mielnik — MidAmerican — MRO — 1, 3, 5, 6 5. Dave Rudolph — BEPC — MRO — 1, 3, 5, 6 6. Marie Knox — MISO — MRO 7. Chuck Lawrence — ATC — MRO 8. Laura Elsenpeter — MRO — MRO — 10 9. Larry Brusseau — MRO — MRO — 10
Ron Falsetti	Ontario IESO	2 - RTOs and ISOs	
Thad Ness	AEP	3 - Load-serving Entities, 5 - Electric Generators, 6 - Electicity Brokers, Aggregators , 1 - Transmission Owners	
Joe Knight	Great River Energy	1 - Transmission Owners, 6 - Electicity Brokers, Aggregators , 5 - Electric Generators, 3 - Load-serving Entities	
Edward Carmen	Transmission System Operations - Baltimore Gas & Electric		
Russell Fernsler	PPL Electric Utilities	1 - Transmission Owners	
Lauri Jones	Pacific Gas and Electric Company	1 - Transmission Owners, 3 - Load-	

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<tr><td></td><td></td><td>serving Entities, 5 - Electric Generators</td><td></td></tr>
<tr><td>Terry L. Blackwell</td><td>Santee Cooper</td><td>1 - Transmission Owners</td><td>
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<tr><td>2.</td><td>Glenn Stephens</td><td>Santee Cooper</td><td>SERC</td><td>1</td></tr>
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<tr><td>Jason Shaver</td><td>American Transmission Company</td><td>1 - Transmission Owners</td><td></td></tr>
<tr><td>John Blazekovich</td><td>Standards Interface Subcommittee/Compliance Elements Drafting Resource Pool</td><td>N/A</td><td></td></tr>
<tr><td>Phil Riley</td><td>Public Service Commission of South Carolina</td><td>9 - Federal, State, Provincial Regulatory, or other Government Entities</td><td>
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<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th><th></th></tr>
<tr><td>1.</td><td>Mignon L. Clyburn</td><td></td><td>SERC</td><td>9</td></tr>
<tr><td>2.</td><td>Elizabeth B. Fleming</td><td></td><td>SERC</td><td>9</td></tr>
<tr><td>3.</td><td>G. O'Neal Hamilton</td><td></td><td>SERC</td><td>9</td></tr>
<tr><td>4.</td><td>John E. Howard</td><td></td><td>SERC</td><td>9</td></tr>
<tr><td>5.</td><td>Randy Mitchell</td><td></td><td>SERC</td><td>9</td></tr>
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<tr><td>6.</td><td>Swain E. Whitfield</td><td></td><td>SERC</td><td>9</td></tr>
<tr><td>7.</td><td>David A. Wright</td><td></td><td>SERC</td><td>9</td></tr>
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<tr><td>Greg Rowland</td><td>Duke Energy</td><td>5 - Electric Generators, 3 - Load-serving Entities, 6 - Electicity Brokers, Aggregators , 1 - Transmission Owners</td><td></td></tr>
<tr><td>Sam Ciccone</td><td>FirstEnergy</td><td>1 - Transmission Owners, 6 - Electicity Brokers, Aggregators , 5 - Electric Generators, 3 - Load-serving Entities</td><td>
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<tr><td>2.</td><td>Jim Eckels</td><td>FE</td><td>RFC</td></tr>
<tr><td>3.</td><td>John Wilson</td><td>FE</td><td>RFC</td></tr>
<tr><td>4.</td><td>Dave Folk</td><td>FE</td><td>RFC</td></tr>
<tr><td>5.</td><td>Doug Hohlbough</td><td>FE</td><td>RFC</td></tr>
<tr><td>6.</td><td>Hugh Bullock</td><td>FE</td><td>RFC</td></tr>
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<tr><td>Kathleen Goodman</td><td>ISO New England Inc.</td><td>2 - RTOs and ISOs</td><td></td></tr>
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1. The System Personnel Training standard drafting team (SPT SDT) revised the effective dates for this Standard to provide for a shorter period for implementation of the training program while allowing for a longer implementation period for implementing the use of training simulation/simulators. Do you agree that the revised effective dates provide for sufficient time to establish a training program, as specified in R1? If not, please explain in the comment area.

Summary Consideration:

Organization	Question 1:	Question 1 Comments:
Bonneville Power Administration	Yes	
NorthWestern Corporation	Yes	
Ameren	No	Everyone who does training now is not necessarily familiar with developing training using the systematic approach. So some trainers will have to acquire these skills. Also some companies will have to hire another person to develop and write the training lessons using the systematic approach. It might take that person more than 6 months just to become familiar with the jobs and the tasks being performed before that person could even begin to do any task listing and developing of any training. So essentially you would have less than 2 years to develop and deliver the training. Three years was a short period of time after implementation of the Standard to have all of the requirements done. Two years is un-realistic.
NPCC	Yes	
PJM Interconnection	No	This change was surprising, as the only comment made on the previous draft was to increase the implementation time. The SDT has shortened the implementation time, without providing justification for the change.
Seattle City Light	Yes	
Southern Company Transmission	No	We suggest the effective date be 36 months for both not 24 and 36. The 36 months will allow the industry the time required to develop quality training programs
Arizona Public Service Company	Yes and No	I can live with it, but I'm not sure if some smaller entities with training responsibilities being conducted by part time operators can. Three years would be better.
Manitoba Hydro	Yes	MHEB agrees with the revised dates.
Wapa (Loveland, Co)	Yes	
Pepco Holdings, Inc. - Affiliates	Yes	
Orlando Utilities Commission	Yes	

Organization	Question 1:	Question 1 Comments:
E.ON U.S. LLC	No	.ON U.S. believes that its training programs are sufficient to meet the requirements of the standard but is concerned that if NERC requires that parties undergo a formal systematic approach to training process that adequate time may not be available to complete the development, testing and administration of a training program. E.ON U.S. requests that NERC provide greater clarity as to whether a systematic approach to training process will be required in all instances and if so, better define what steps are required to implement this process. Without this guidance E.ON U.S. suggests that shortening the training period is not appropriate at this time.
WECC Reliability Coordination Comment Working Group	Yes	
SERC Standards Review Group	No	Our group supports the return of the training program effective date to 36 months after the first day of the first calendar quarter following regulatory approval. We feel that a 36-month implementation period is needed to allow responsible entities to develop quality training programs under the systematic approach required by the standard.
PowerSouth Energy Cooperative	No	Reducing the time frame from 36 to 24 months is not appropriate for the implementation of quality training. The evaluation and purchase process, lead time and cost to implement simulators as stated in R3.1 is unreasonable and does not necessarily improve reliability.
PSEI	No	The plan should go back to 3 years. There are many entities that will essentially have to re-build there programs to meet the administrative burden of an auditable SAT. I also disagree with the statement in the standard that R3 is presently in effect. The language, and therefore interpretation, of R3 differs from what is in the current approved standard. The new R3 in this standard should not go into effect until the first calendar quarter following regulatory approval of the standard.
FRCC System Operator Subcommittee	Yes	
SRP		
Hydro One Networks	Yes and No	The timelines of 2 months and 36 months are appropriate however the general wording of the Effective Date section of the Standard and the Implementation Plan should be modified. In principle, the effective date of standards must be the same for all jurisdictions in North America. It does not make sense that there is a period of time when a standard is effective only in some jurisdictions while not in others. This is particularly important in standards that have a clear reliability impact. In addition, it does not seem appropriate to have entities exposed to sanctions for non-compliance in some jurisdictions while not in others. We suggest: ?Requirement 1 and Requirement 2 becomes effective 2 months after the first day of the first calendar quarter following the date the standard is approved by all applicable regulatory authorities. ?"Requirement R3.1 becomes effective 36 months after the first day of the first calendar quarter

Organization	Question 1:	Question 1 Comments:
		following applicable the date the standard is approved by all applicable regulatory authorities."
Entergy - System Planning & Operation (Generation)	Yes	
CenterPoint Energy		
Ohio Valley Electric Corporation	No	A longer time period of 36 months better represents the industry project process of planning, budgeting, and construction. The scope of training as outlined in this standard would certainly be considered a project. Year 1 (months 1-12) is the planning year. Year 2 (months 13-24) is the budgeting year. Year 3 (months 25-36) is the purchase and construction year. Having a shorter implementation period would not give utilities an opportunity to appropriately address and consider each stage of the project process which could lead to significant errors in either the planning, budgeting, or construction (implementation) stage.
City Of Tallahassee (TAL)	Yes	
BCTC	No	The previous version of the standard included 36 months for implementing the re-defined training program and all the new requirements for a training program. The reduction in time from 36 months to 24 months is not acceptable. The 36 months implementation period, based on the amount of time needed to create the task lists of company-specific reliability related tasks performed by its System Operators, to conform with a systematic approach to training and the RRO's definition of the Bulk Electric System, and to provide the one time training to all system operators should be retained.
ISO/RTO Council - Standards Review Committee	No	The IRC does not agree with the SDT's proposal, particularly as it relates to training simulation/simulators (for details see comments under Q3).
WECC Operations Training Subcommittee	No	The previous version of the standard included 36 months for implementing the training program. The WECC OTS would like to see this time frame returned, based on the amount of time needed to create the task lists of company-specific reliability related tasks performed by its System Operators, utilizing a systematic approach to training, the regions definition of the Bulk Electric System and the time to provide the one time training to all system operators.
MRO NSRS	No	The original time frame of 36 months allowed entities to formulate an effective plan, ensuring compliance to the new Standard and requirements, as well as providing the training that will be needed when the MISO ancillary service market implementation scheduled for September 9, 2008. The systematic approach to training (SAT) process is a detailed process where entities are going to need to be trained in order to fulfill the requirements. There will need to be a substantial capital investment by entities who must comply with this updated Standard. By reducing the time frame to 24 months the Standard will not be as effective and may lead to possible shortcomings in the detailed training that is required for System Operators.
ONtario IESO	No	We have a comment on the use of training simulation/simulators (see comments under Q3) and are

Organization	Question 1:	Question 1 Comments:
		therefore not agreeing with that part of the implementation date.
AEP	No	The Requirements R1 and R2 implementation period should not be shortened but rather remain at the 3 year implementation requirement previously specified in Draft 3 of the standard. We believe it will take the 3 years to assure proper development of the training and objectives required to support all reliability tasks, and to verify every existing operator's capability to perform every identified reliability task as specified in R2. For some operators, the majority of their tasks may be reliability tasks.
Great River Energy	No	he original time frame of 36 months allowed entities to formulate an effective plan, ensuring compliance to the new Standard and Requirements, as well as providing the training that will be needed when the MISO ancillary service market is implemented which is scheduled for September 9, 2008. The systematic approach to training (SAT) process is a detailed process where entities are going to need to be trained in order to fulfill the requirements. There will need to be a substantial capital investment by entities that must comply with this updated Standard. By reducing the time frame to 24 months the Standard will not be as effective and may lead to possible shortcomings in the detailed training that is required for System Operators.
Transmission System Operations - Baltimore Gas & Electric		
PPL Electric Utilities	Yes	
Pacific Gas and Electric Company	No	There is an assumption that all entities utilize a systematic approach to their current training program. We would guess that is not the case, since utilizing this methodology may generate a lot of paper work and is administered by those with a background in implementing a systematic approach to training. With the passage of this new standard, reducing the implementation time frame from 36 to 24 months will in many cases create additional burdens to some entities and others will need to make improvements to their programs to meet the new standard and measures. In either case, entities will have to either rely on in house development or vendors to meet the criteria. This may be a substantial change and may require project funding, which in of itself creates a timeline of anywhere between 1-3 years and a process of planning, budgeting, and implementation. Therefore, within the first two years planning (analyzing and designing) and budgeting would have to be completed, followed by development and implementation. We feel returning the training program effective date to 36 months after the first day of the first calendar quarter following regulatory approval allows responsible entities to develop quality training programs under the systematic approach required by the standard.
Santee Cooper	No	Santee Cooper believes that 36 months is needed to implement a quality training program utilizing the systematic approach to training. Requirement 1 and Requirement 2 should both become effective 36 months after appropriate approvals.
American Transmission	Yes	As the JTA is new; but the requirement to have a training program is not, it is reasonable to conduct and

Organization	Question 1:	Question 1 Comments:
Company		implement a JTA within a two year timeframe.
Standards Interface Subcommittee/Compliance Elements Drafting Resource Pool		
Public Service Commission of South Carolina	Yes	
Duke Energy	No	While 24 months is sufficient time to implement R1, implementing R2 will take longer because verifying System Operators' capabilities is dependent upon development of the task list and training program. 36 months should be allowed for implementation of R2.
FirstEnergy	Yes	The 24-month implementation allows for sufficient time for industry to properly develop their training programs and to formulate the required evidence for compliance.
ISO New England Inc.	Yes	

2. The SPT SDT revised R1 to provide clarity and eliminate the ambiguity concerning the training program to be established. R1 now reads: "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program." Do you agree that the revised language now clearly defines the training program to be developed? If not, please explain in the comment area.?

Summary Consideration:

Organization	Question 2:	Question 2 Comments:
Bonneville Power Administration	Yes	
NorthWestern Corporation	Yes	
Ameren	Yes and No	I don't think the addition of "and shall implement the program" is necessary as R.1.3 already does this.
NPCC	Yes	
PJM Interconnection	No	It is still unclear if this addresses only new programs. R1 ignores the fact that many RCs, BAs & TOs already have excellent training programs in place. Is R1 intended to cover existing work as well? These programs are effective, however, they may not have been built "using a systematic Approach to Training" (SAT). Even if they were built with a SAT, the documentation for this would need to be created. The timely completion of this is unlikely, given the new, abbreviated, implementation time (see 1 above).
Seattle City Light	Yes	
Southern Company Transmission	No	What about the training programs that are in place now? Are they grand fathered? The industry needs clear direction on existing training programs. We support the use of the Systematic Approach-To-training (SAT). However the proposed standard seems to infer that to be consistent with SAT an entity need only develop a "company-specific reliability-related task". The SAT process is more than merely developing a list of Tasks. (Analysis, Design, Develop, Implement, and Evaluate.) Additionally as written the proposed standard provides no industry guidance in determining what constitutes "…a company-specific reliability-related task". It is purely subjective. Further, developing this subjective list does nothing to enhance reliability. An entity can make this list as long or short as they see fit. This task list should, at minimum, fully support the function type definition contained in the NERC Statement of Compliance Registry Criteria (Revision 4.0) for the Company's Compliance Registry Certification.
Arizona Public Service Company	Yes	
Manitoba Hydro	Yes	MHEB agrees that the revised language makes it clear.
Wapa (Loveland, Co)	Yes	

Organization	Question 2:	Question 2 Comments:
Pepco Holdings, Inc. - Affiliates	Yes	
Orlando Utilities Commission	Yes	
E.ON U.S. LLC	No	As outlined above, E.ON U.S. requests that NERC fully identify what steps are required to use a "systematic approach to training". As previously discussed, the use of the DOE process if required will require a substantial resource and time commitment but will not guarantee that the resulting training program is any better than the programs currently in place for training system operators. E.ON U.S. recommends that the standard be altered to allow entities to demonstrate that their current training programs and policies, while not necessarily developed through a defined systematic approach do meet the requirements of the standard.
WECC Reliability Coordination Comment Working Group	Yes	
SERC Standards Review Group	No	This group feels that the requirement to "establish a training program" using the systematic approach to training (SAT) is still ambiguous with respect to existing training materials. Can these resources be retrofit into the SAT-developed program? Are existing materials grandfathered and therefore exempt from meeting requirement R1? The industry needs clear direction on how responsible entities can incorporate their existing materials into the established "training program" and still be compliant with requirement R1. Furthermore, the development of reliability-related system operator tasks is a crucial first step for the SAT process. It would be helpful to have a suggested (not prescriptive) list of generic tasks that training personnel could use as a starting point to create the list of BES company-specific reliability-related tasks required by R1.1. This group suggests that the PER-005 System Personnel Training Reference Document be augmented to include such a generic task list. We further suggest that Appendix A: Generic Task List of Draft 2 of PER-005 be used as the suggested list of operator tasks. By moving the task list out of the Standard and into the Reference Document, training personnel will have the flexibility to modify the tasks, or add/remove tasks to suit their specific system.
PowerSouth Energy Cooperative	No	Some direction on existing training programs and how they will fit into the requirement should be inlcuded in the standard. Also, the current wording leaves a lot of interpretation to an auditor in deciding what tasks are be appropriate to included in the task list.
PSEI	No	BES company-specific, reliability-related tasks is open to interpretation by auditors. What if an auditor thinks some task should be on my task list, but my evaluation based on difficulty, frequency, and importance concludes it does not? Am I automatically in violation? The current wording is so broad that essentially all tasks could be linked to it. Perhaps re-phrasing to "critical BES company-specific reliability-related tasks ..." or "BES company-specific reliability-related tasks determined to be critical ..." would

Organization	Question 2:	Question 2 Comments:
		help trainers with refining their task list to a more manageable level.
FRCC System Operator Subcommittee	Yes	
SRP		
Hydro One Networks	Yes	
Entergy - System Planning & Operation (Generation)	No	The two sentences that make up R1 seem to convey a purpose/intent rather than an actual requirement. R1 adds nothing that is not already covered in the "sub-requirements" that are listed. There is no reason to state that a 'systematic approach to training' is required and then go on to state the specific requirements of that concept. Only the requirements are needed. It is suggested that R1 be integrated into the PURPOSE section of PER-005 as such: To ensure that System Operators performing real-time, relaibility-related tasks on the North American Bulk Electric System (BES) are competent to perform those tasks through a systematic approach to training. The Sub-requirements should be made as stand alone requirements in the standard.R1.1 - a reference document containing a possible list of reliability tasks may be useful for some entities, as long as it is not interpreted to be all encompassing nor required to be required tasks.R1.1.1 - "annually" needs better definition. Is it January through December? Or is it within 12 months of the last performance?
CenterPoint Energy		
Ohio Valley Electric Corporation	No	The wording "systematic approach" may be clearly stated, but the words will not be uniformly understood or applied in the development of a training program. Similarly, the individual company interpretations of "reliability-related tasks" will not be uniformly understood or applied. The R1 wording should be, "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall establish a training program for its System Operators and shall implement the program."
City Of Tallahassee (TAL)	Yes	
BCTC	No	"Company-specific reliability-related tasks" are not defined. These tasks may vary with different RROs and as related to the RRO's definition of the BES. Therefore, it is up to each RRO to provide clear guidance to its entities to establish these tasks and that will require additional time to develop. If the BES is not properly defined by the RRO, then it will be extremely difficult for an entity to determine if the BES company-specific reliability-related tasks in its training program meet this requirement. We are also concerned that unless there is a clear definition or examples of what "Company-specific reliability-related tasks" are then an audit team will define them as they see fit and this does not meet the spirit of removing ambiguity from the Standards.
ISO/RTO Council - Standards Review Committee	Yes	The IRC agrees that any new training program should be created using a systematic approach to training. However, the SDT should make clear that this requirement is related only to new programs and will not be imposed retroactively on training modules created prior to this standard.
WECC Operations	No	"Company-specific reliability-related tasks" are not defined and therefore it will be up to each region to

Organization	Question 2:	Question 2 Comments:
Training Subcommittee		provide this assistance. The WECC OTS believes the additional time needed for this definition from the regions needs to be provided for in the implementation phase. However, this definition will vary within the regions and some may have a broader definition, which will make it extremely difficult for an entity to determine if its training program meets this requirement.
MRO NSRS	Yes	
ONtario IESO	No	The term "systematic approaching to training" needs to be defined. Interpretations currently vary widely across the industry.
AEP	Yes	
Great River Energy	Yes	
Transmission System Operations - Baltimore Gas & Electric		
PPL Electric Utilities	Yes	
Pacific Gas and Electric Company	No	This statement; "shall use a systematic approach to training to establish a training program" based on "for the BES company-specific reliability-related tasks performed by its System Operators" will be the challenge! This leaves open for interpretation by the auditors what that means for each entity and will therefore, create inconsistency throughout the industry. The compliance audits are already creating inconsistency within the industry and this standard will further add to that inconsistency. NERC Standards should clearly state the requirement(s) and measure(s), and not create more uncertainty.
Santee Cooper	Yes	We recommend the Standard include as a reference document a suggested (not prescriptive) list of generic tasks that training personnel could use as a starting point to create the list of BES company-specific reliability-related tasks required by R1.1. It should be clear that the list is only SUGGESTED generic tasks so that if a company determines one of the tasks is not a reliability-related task performed by its System Operators that an audit team could not deem the company non-compliant if all tasks are not included.
American Transmission Company	Yes	
Standards Interface Subcommittee/Compliance Elements Drafting Resource Pool		
Public Service Commission of South Carolina	Yes	
Duke Energy	No	R1 should state that each RC, BA and TO shall define and use a systematic approach to training. Since

Organization	Question 2:	Question 2 Comments:
		the systematic approach to training is not a NERC-defined term, an auditor may not agree with an entity's selected approach. Similarly, R1.1 should state that each RC, BA and TO shall define its list of BES company-specific reliability-related tasks performed by its System Operators. Also, the R1 High and Severe VSLs need to have the word "list" added back in.
FirstEnergy	Yes	
ISO New England Inc.	Yes	

3. The SPT SDT revised R3 and added R3.1 to provide clarity in the types of training that can be utilized and the entities that must use simulation/simulator training in their emergency operations training. Do you agree that this requirement now clearly describes the types of training that can be utilized as well as the entities that must provide simulation/simulator training in its emergency operations training? If not, please explain in the comment area.

Summary Consideration:

Organization	Question 3:	Question 3 Comments:
Bonneville Power Administration	Yes	
NorthWestern Corporation	No	R3.1 specifies that the simulator training is required only for IROL situations. However, the corresponding measure (M3.1) does not stipulate the same. It is unclear if this requirement/measure applies only to IROLs or both IROLs and SOLs. Is this requirement not applicable in the Western Interconnection since there is an absence of IROLs in the West?
Ameren	No	What is "other training required to maintain qualified personnnel"? Why not just say "using drills, excercises, or other methods of training".
NPCC	No	R3.1 is overly prescriptive on how to accomplish training. The objective of this standard is to ensure that the RC, TOP, and BA develop and implement a training program for its system operators to deal with normal and emergency situations. Handling IROL violations is just one of the tasks that an RC operator must be able to perform. How to achieve this training to meet the needed competency level should be left to the responsible entity. The NERC Operator Certification exercise is the vehicle to test the operators' knowledge of handling these situations, not the prescriptive tool for training. If a simulator, virtual, or other technology that replicates the operational behavior of the bulk power system during normal and emergency conditions is required for RC, TOP, and BA to facilitate system operator training, then where justified it should be a requirement for organization certification, not for a training program.
PJM Interconnection	No	As written, there is no minimum amount of simulator training needed to satisfy R3 (eg, using a "technology that replicates the operational behavior of the BES" for five minutes would meet the requirement). NERC Certification programs currently mandate that RC, BA, & TO system operators have 30 hours of simulator training over their three year certification period. A duplication here (with no minimum requirement) seems pointlessly redundant.
Seattle City Light	Yes	
Southern Company Transmission	No	We disagree with mandating the use of a training simulator. R3. should be revised to allow an entity the flexibility of using any or all of the following training resources to meet its emergency operations requirement; drills, exercises, training classes or hands on training using simulation. This requirement is onerous. Less affluent entities that operate the BES, and also fall under NERC's purview will be hard

Organization	Question 3:	Question 3 Comments:
		pressed to afford a "simulator" that truly imitates their system. The purchase, model maintenance and operation of a simulator can be a financial burden for a smaller entity with an IROL.
Arizona Public Service Company	No	I suggest the following revisions: R3 At least every 12 months each Reliability Coordinator, Balancing Authority, and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization, including system restoration using drills, exercises, or other training activities.R3.1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training based on the operational behavior of the BES during normal and emergency conditions. These changes maintain the intent of the requirement while allowing for flexibility in training methods.
Manitoba Hydro	Yes	MHEB agrees that the revision more clearly describes the types of training and which entities must provide simulation/simulator training.
Wapa (Loveland, Co)	Yes	
Pepco Holdings, Inc. - Affiliates	Yes	
Orlando Utilities Commission	Yes	Placing examples directly within the body of text leads to ambiguity. In this case it would appear that drills are only applicable to system restoration. I would recommend always placing examples of items within parentheses, producing:... emergency operations topics (including system restoration) using drills, exercises ...As far as using simulation, I think that the requirement is fairly clear however I hate to bring up that the requirement does not specify that the clock-time of the simulations must use actual clock time and not artificially slowed down events.
E.ON U.S. LLC	No	The standard does not define what is considered a simulation/simulator training platform. E.ON U.S. does use internal and vendor provided emergency system simulator training. In most programs the emergency conditions embedded in the training programs while not specific to E.ON U.S. operations represent conditions that can reasonably be expected to surface during times of system emergencies.. Therefore, these simulation/simulator training provide valuable framework from which to develop specific operator protocols to follow when experiencing system emergencies. Once again E.ON U.S. requests that NERC either better define what it considers a simulation/simulator training or allow each entity to demonstrate that training currently provided is sufficient to meet the standards.
WECC Reliability Coordination Comment Working Group	Yes and No	It does a better job of clarifying what entities must use simulation, but it does not specify what number of EOP hours must be simulation only. We suggest that the number of hours be determined by the entity itself utilizing the requirements in PER 005 R1.4.
SERC Standards Review Group	No	The consensus of this group is that the use of simulators for certain entities should not be mandated and that requirement R3.1 should be removed from the standard. Requirement R3 should be revised to

Organization	Question 3:	Question 3 Comments:
		allow every responsible entity the flexibility to meet its emergency operations training requirement using any or all of the following types of training: drills, exercises, training classes, or hands-on training using simulation. If Requirement 3.1 does remain in the standard, this group feels that entities mandated to use simulator training should be limited to Reliability Coordinators that have established IROLs within their coordinating footprint. In addition, the initial phrase in R3, "At least every 12 months" needs further clarification. We understand and appreciate the reason for changing the requirement for 32 hours of emergency training from every calendar year to every 12 months. This change was intended to permit an operator hired late in year to obtain his/her 32 required hours over a full 12 month period instead of just a month or two. However, this wording does not fully reflect this flexibility. The Drafting Team is requested to add some wording that clearly states that the 12-month period for this required 32 hours of training can be determined by the entity on a case-by-case basis, depending on an operator's specific circumstances.
PowerSouth Energy Cooperative	No	Section of 3.1 is poorly worded. It is unclear what "simulation technology or other technology that replicates operational behavior" implies. Flexibility in the training including hands-on exercises, table top drills, classes should be allowed.
PSEI	No	Who this applies to is still very vague and open to interpretation by auditors. Performing a Google search on "WECC IROL" will produce a "philosophy" document that states "The WECC does not have any IROLs under normal operation, but an SOL condition, depending upon the operating conditions, could become an IROL condition, which would be determined post-analysis." I am afraid of entities honestly believing that this standard does not apply to them, but suddenly finding themselves fined because an auditor believes everyone has IROLs or SOLs that could become IROLs. Perhaps the standard could ask the RRO to further define who this applies to. Of course, nothing would prevent the region from putting out an overly burdensome definition.
FRCC System Operator Subcommittee		FRCC disagrees with tying the requirement to SOL/IROL remediation. FRCC also disagrees with having to have a simulator. While they are good tools, a generic simulator (that replicates the response of the BES) is not the cure-all for a training in system response (including restoration). A good table-top on an entity's own system will provide better understanding of the operators own system and how to restore it. Many small entities are quite capable of producing quality training with a table-top. Do not pass requirements that will be overly burdensome to small utilities to fix a perceived problem in the value of training on simulators as compared to table-top exercises. We can have well trained operators without breaking the bank. The inclusion of mandatory simulators contradicts previous public responses from FERC. This requirement is beyond a minimum standard, it is a "best practice". Leave it out of the standard!
SRP	No	The Interconnection Reliability Operating Limit (IROL) should not be used to establish the applicability of this requirement, since the term itself is not well understood within the industry. Based on the obligations

Organization	Question 3:	Question 3 Comments:
		of the drafting team to clearly identify the applicability of the standard, it would be necessary for the drafting team to list all RCs, BAs and TOPs who have operational authority or control over Facilities with established IROLs.
Hydro One Networks	Yes	
Entergy - System Planning & Operation (Generation)	Yes	However the number of hours required is not clear; is there a minimum number of hours of the 32 that must meet this simulation technology requirement?.
CenterPoint Energy	No	No. CenterPoint Energy believes that additional clarity is needed. R3.1 can be interpreted to mean that for the entities identified simulation technology?. must be used for (all) 32 hours of emergency operations training. This goes far beyond the directive from FERC in Order 693, paragraphs 1390-1391. CenterPoint Energy believes from the Consideration of Comments on the 3rd Draft? the intent is for the entities identified in R3.1 to include simulation technology within the at least 32 hours? of emergency operations training provided to each System Operator, which is consistent with the directive from FERC in Order 693, paragraphs 1390-1391.In R3.1, CenterPoint Energy proposes to replace "using" with "including the use of" to clarify the intent as discussed above. R3.1 would read as follows: R3.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training including the use of simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.
Ohio Valley Electric Corporation	No	Emergency operations training should not be limited to the tasks "applicable to its organization." Many emergency operations topics are related to concepts and not tasks performed by System Operators. The task list developed in R1 could be used to identify some emergency operations training topics but will not cover all the topics that should qualify as emergency operations training.R3.1 is too specific/detailed to be included as a requirement in the standard. Place the details of R3.1 in a reference document or guide.PER-002 R4 currently defines emergency operations training clearly and is well understood and successfully implemented by the entities required to provide this training. PER-005 R3 should be revised to the wording in PER-002 R4.
City Of Tallahassee (TAL)	No	I disagree with tying the requirement to SOL/IROL remediation. I also disagree with having to have a simulator. While they are good tools, a generic simulator (that replicates the response of the BES) is not the cure-all for a training in system response (including restoration). A good table-top on an entities own system will provide better understanding of the operators own system and how to restore it. The cost-benefit analysis may not justify the expense of producing and maintaining a simulator for many small entities that are quite capable of producing quality training with a table-top. Cost needs to become a

Organization	Question 3:	Question 3 Comments:
		factor in what is mandated for the operation of the BES. Compliance is pushing the cost of doing business through the roof. Customers and their advocates are getting fed up with the increased costs they are paying for the same service. They do not see the additional support and tools needed to have an effective compliance program and prevent fines. Do not pass requirements that will be overly burdensome to small utilities to fix a perceived problem with poor training. We can have well trained operators without breaking the bank. The inclusion of mandatory simulators contradicts previous public responses from FERC. This requirement is beyond a minimum standard, it is a "best practice". Leave it out of the standard!
BCTC	No	Using simulation to deliver training which may be developed out of R1.4 requires a guideline or a clear number of hours for an entity to determine how many hours should be required to meet the standard. Or, if an entity has no task identified that requires simulation according to the definition in the Standard, then the Standard should reflect completion of your annual NERC certification requirements for certification renewal, i.e. a minimum 10 hours of simulation. We would support 10 hours of simulation training.
ISO/RTO Council - Standards Review Committee	No	Subrequirement 3.1 is overly prescriptive regarding how to accomplish training. The objective of this standard is to ensure the RC, TOP and BA develop and implement a training program for its system operators to deal with normal and emergency situations. Handling IROL violations is one of the tasks that an RC operator must be able to perform. How to achieve this training to meet the needed competency level should be left to the responsible entity. The NERC Operator Certification exercise is the vehicle to test the operators' knowledge of handling these situations, not the prescriptive tool for training. The following requirement 3.1 text referring to instructional applications in the current draft is excessively vague: "shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions." What does it mean to say "virtual technology, or other technology that replicates the operational behavior of the BES...." ? A clear language version of the intended text should be: "shall provide each System Operator with emergency operations training employing power flow results which replicate the operational behavior of the BES during normal and emergency conditions." If a simulator or virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions is required for RC, BA and TOP to facilitate system operator training, where justified, then it should be a requirement for organization certification, not for training program.
WECC Operations Training Subcommittee	No	The WECC OTS believes using simulation to identify training which may be developed out of R1.4 and believes a guideline is needed to determine how many hours should be required in this standard. Or, if no task is identified, then the standard should reflect completion of your annual NERC certification requirements for certification renewal, i.e. a minimum of 10 hours of simulation.
MRO NSRS	No	The SPT SDT has done a great job on R3.1 but we wonder about R3. R3 mentions other system

Organization	Question 3:	Question 3 Comments:
		specific emergency training available to maintain qualified personnel is there a way that the SDT can clarify what type of training is acceptable? Is attending any NERC workshop acceptable? Perhaps, the SDT could suggest some examples and place them in the PER-005 System Personnel Training Reference Document.
ONtario IESO	No	Subrequirement 3.1 is overly prescriptive on how to accomplish training. The objective of this standard is to ensure the RC, TOP and BA develop and implement a training program for its system operators to deal with normal and emergency situations. Handling IROL violations is one of the tasks that an RC operator must be able to perform. How to achieve this training to meet the needed competency level should be left to the responsible entity. The NERC Operator Certification exercise is the vehicle to test the operators' knowledge of handling these situations, not the prescriptive tool for training. If a simulator or virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions is required for RC, BA and TOP to facilitate system operator training, where justified, then it should be a requirement for organization certification, not for training program. Further, in order to be a measurable requirement, the functionality and use of a simulator would need to be specified.
AEP	No	R3.1 - We disagree with the requirement to utilize a simulator for annual emergency operations training. Use of a simulator for training should be an option (not a requirement) for all entities. It should not just be optional for those entities without established IROLs. Also, discriminating in the requirement to have a simulator based on having an established IROL or guides/procedures to mitigate IROL violations, could cause a political view by an entity to avoid claiming an IROL to in turn avoid purchasing a simulator.
Great River Energy	No	GRE recommends replacing the existing phrase "other training required to maintain qualified personnel" with the following text "or other system specific emergency training available to maintain qualified personnel"
Transmission System Operations - Baltimore Gas & Electric		
PPL Electric Utilities	Yes	
Pacific Gas and Electric Company	Yes and No	We recognize that utilizing a simulator for training can greatly enhance the operator's awareness of system conditions and can enable them to respond in a training environment to simulated events which will not lead to an actual cascading event or collapse of the BES. In many cases of an operator's career, this would constitute approximately 10% or less of their actual work time and what they need to know and how to respond to an emergency situation. This additional requirement for some smaller entities that operate within the BES may create financial burdens with the required purchase, model maintenance and operation of a simulator that imitates their system. We recommend R3. be revised to allow an entity

Organization	Question 3:	Question 3 Comments:
		the flexibility of using any or all of the following training resources to meet its emergency operations requirement; drills, exercises, training classes or hands on training using simulation.
Santee Cooper	No	In R3.1 the SDT has tried to define what size entity is required to provide simulation training. Santee Cooper recommends removing R3.1 and revising R3 to read "to its organization that reflects emergency operations topics (which includes system restoration) using drills, exercises, training classes, or hands on training using simulations or other training required to maintain qualified personnel." This will provide flexibility for training within the companies and meets FERC's requirement of the use of simulators. The "at least every 12 months" wording in R3 needs to have additional wording added to allow for case by case basis. This change was intended to permit an operator hired late in year to obtain his/her 32 required hours over a full 12 month period instead of just a month or two. However, this wording does not fully reflect this flexibility.
American Transmission Company	Yes	Suggestion on the 12 months: The SDT had the following statement to ATC's previous comment: "THE SPT SDT did not intend to define the 12 month period for providing emergency operations training. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from annually to every 12 months to allow for the situations of new hires late in the calendar year."ATC understands the SPT SDT position on the 12 month period, but believes that the standard should contain this clarity. ATC suggests that the Requirement 3 contain a footnote describing the SPT SDT meaning of the 12-months.
Standards Interface Subcommittee/Compliance Elements Drafting Resource Pool		
Public Service Commission of South Carolina	Yes	
Duke Energy	No	As written, R3.1 applies only to entities that have IROLs or operating guides or protection systems to mitigate IROL violations. Paragraph 1393 of Order 693 states that simulators should be used by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. The Standards Drafting Team should resolve this disconnect. R3.1 also uses undefined terms (simulation technology, virtual technology) that should be further clarified to reduce ambiguity. We also note and agree that while 36 months is allowed for implementation of R3.1, R3 is in effect now for emergency operations training.
FirstEnergy	Yes and No	We agree that the addition of R3.1 more clearly specifies when simulators, or simulation technology, is required. However, the duration of required simulator training is not specified in R3.1. We would not want an auditor to think that you would need 32 hours of simulator training since using simulation technology

Organization	Question 3:	Question 3 Comments:
		would only be a part of all the training tasks. In R3.1, we suggest the SDT specify that a duration of at least 1 hour of simulation training shall be part of the 32 hours of emergency operations training.
ISO New England Inc.	No	Subrequirement 3.1 is overly prescriptive regarding how to accomplish training. The objective of this standard is to ensure the RC, TOP and BA develop and implement a training program for its system operators to deal with normal and emergency situations. What does it mean to say, "virtual technology, or other technology that replicates the operational behavior of the BES...." ? A clearer language version of the intended text would be: "shall provide each System Operator with emergency operations training employing power flow results which replicate the operational behavior of the BES during normal and emergency conditions."

4. The SPT SDT modified the Data Retention section of this Standard to provide clarity: "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance, for three years or since its last compliance audit, whichever time frame is the greatest, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation." Do you agree that this Standard now clearly defines the period for which compliance records must be kept? If not, please explain in the comment area

Summary Consideration:

Organization	Question 4:	Question 4 Comments:
Bonneville Power Administration	Yes	
NorthWestern Corporation	Yes	
Ameren	Yes	
NPCC	Yes	
PJM Interconnection	Yes	
Seattle City Light	Yes	
Southern Company Transmission	Yes	
Arizona Public Service Company	Yes	
Manitoba Hydro	Yes	MHEB agrees that the revision clearly states the record retention period.
Wapa (Loveland, Co)	Yes	
Pepco Holdings, Inc. - Affiliates	Yes	
Orlando Utilities Commission	Yes	
E.ON U.S. LLC	Yes	
WECC Reliability Coordination Comment Working Group	Yes and No	Yes the measure is clear but we believe the measure should be reflected in the requrement. The measure expects more information be retained than the requirement identifies.
SERC Standards Review Group	Yes	
PowerSouth Energy Cooperative	Yes	

Organization	Question 4:	Question 4 Comments:
PSEI	Yes	
FRCC System Operator Subcommittee	Yes	
SRP		
Hydro One Networks	Yes	
Entergy - System Planning & Operation (Generation)	Yes	
CenterPoint Energy		
Ohio Valley Electric Corporation	Yes	Less is often better!
City Of Tallahassee (TAL)	Yes	
BCTC	Yes	
ISO/RTO Council - Standards Review Committee	Yes	
WECC Operations Training Subcommittee	Yes	
MRO NSRS	No	The SPT SDT has done a great job in revising the Data Retention sections of PER-005-1 Draft 4 and PER-004-1 but we were wondering, each standard states that ?the Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.? (This statement usually appears at the end of the section.) We would like to see this statement removed from the standard since the Compliance Enforcement Authority is not a user, owner, or operator of the Bulk Power System. This statement should be made in the Compliance Monitoring and Enformcement Programs.
ONtario IESO	Yes	
AEP	Yes	
Great River Energy	Yes	
Transmission System Operations - Baltimore Gas & Electric		
PPL Electric Utilities	Yes	
Pacific Gas and Electric Company	Yes	
Santee Cooper	Yes	

Organization	Question 4:	Question 4 Comments:
American Transmission Company	Yes	
Standards Interface Subcommittee/Compliance Elements Drafting Resource Pool		
Public Service Commission of South Carolina	Yes	
Duke Energy	Yes	
FirstEnergy	Yes	
ISO New England Inc.	Yes	

5. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Summary Consideration:

Organization	Question 5 Comments:
Bonneville Power Administration	
NorthWestern Corporation	
Ameren	
NPCC	
PJM Interconnection	SAT, while a valid training process is not without its shortcomings, or the only acceptable method to develop training. This is especially true in the area of just-in-time training. Mandating a training development process is not conducive to a reliability standard, and would be difficult to monitor for compliance. The standard as written mandates a "How-to" approach which is not within scope of a reliability standard. This standard would divert the already scarce training resources away from training operators to the administrative work of documenting every step of the training process to ensure compliance with the standard. It could have the unintended consequence of actually reducing the number of training hours the operators receive. Ultimately, training effectiveness will be measured by compliance with existing reliability standards. That being said, the objective is to ensure qualified system operators. PJM supports the parallel implementation of hourly training requirements for continuing education as well as initial training. NERC has a Continuing Education Program that ensures high quality training, and sets forth a structure using Continuing Education Hours (CEHs) for "NERC Certified Operators". While NERC has continually stated that the CEH program is separate from the standards, little justification has been provided for this separation. Thus, redundant and possibly conflicting training requirements are being proposed. NERC has stated, in it's 2008 budget, that the CEH program ""promotes excellence" and "advances improved performance". Utilizing the CEH approach, PJM would support the increase of the training time required under R3 to at least 100 CEHs annually with category breakdown (i.e. simulation, standards, EOP) as specified in the NERC Certification program. PJM also proposes that for new operators, R2 be replaced with a fixed training hour requirement that is broken down into specific areas (such as job assignments, NERC Standards, tools, internal procedures, etc.). This initial training requirement would be analogous to the CEH program for existing operators, but focused on specific categories related to the initial requirements of the job. PJM would suggest that the SDT post this idea for industry comments.
Seattle City Light	The increase in time for the simulation was necessary. Vendors will be flooded with requests to model their system for this simulation requirement and this will take time.

Organization	Question 5 Comments:
Southern Company Transmission	We are concerned with the current draft of PER-005. It is likely that auditors will consistently disagree with the composition of an entity's reliability related task list. Ambiguous subjective requirements have no place in a mandatory reliability standard. A better approach would be to capture in this standard the continuing education requirements and categories by type of NERC certification.
Arizona Public Service Company	Simplify step R1.1.1 as follows: Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall review its list of BES company-specific reliability-related tasks performed by its System Operators at least annually to ensure the list's adequacy.
Manitoba Hydro	
Wapa (Loveland, Co)	
Pepco Holdings, Inc. - Affiliates	For the Violation Risk Factors for R1, High and Severe, all the references to -when developing a new or modifying an existing training program- should be removed. This language is no longer a part of the Requirements. Additionally, the High and Severe VSLs should reflect that R1.1, R1.2 and R1.3 should all be at the same severity level because all are equally important to meeting the standard.
Orlando Utilities Commission	I greatly appreciate the effort that the drafting team has put in this standard and would like to say thank you (my hat comes off to you).
E.ON U.S. LLC	E .ON U.S. generally supports the intent of the PER-005 standard, but it does not believe that following the Systematic Approach to Training. While E.ON U.S. acknowledges that formal operator training is essential for the safe and reliable operation of the electricity system, it is concerned that any incremental reliability gains derived from implementing the SAT process may not be worth the substantial cost for companies and their customers. - E.ON U.S. believes that utilities should have the ability to outline and tailor their training programs to reflect the unique characteristics of their systems and the unique circumstances that each operator is likely to confront in the operation of the system. Many parties already have developed and will continue to conduct extensive and highly effective training of their operations staff. Absent some demonstration of substantial incremental benefit, a standard requiring utilities to start from scratch with a formal SAT process will be unjustifiably burdensome, distracting, and require a complete reallocation of already limited resources, all to the potential detriment of continued safe and reliable operations. - E.ON U.S., as well as many other parties, currently trains their system operators through many processes. For E.ON U.S., all new hires are required to complete a structured training program that covers all areas of operations during normal and emergency system conditions. This training is in the form of structured classroom and/or NERC certified vendor training plus direct instruction from supervisory operators through the use of actual control room equipment and, where appropriate, simulators. No operator is allowed to independently work until the supervisory personnel has

Organization	Question 5 Comments:
	certified that training has been completed and the employee has satisfactorily demonstrated proficiency in all identified tasks through the successful completion of a rigorous testing program. – All existing operators that have been certified as being proficient at a journeyman level will receive annual refresher instruction and training, both through vendor and simulator training programs to, again, guarantee that operators have a mastery of all tasks required of them. – E.ON U.S. believes, therefore, that its current training program, while not identical with the DOE SAT process, achieves the same goals and objectives of having well-trained and proficient system operators in place, and in maintaining a rigorous training regimen to keep those skills at the highest attainable levels. Such a program provides systematic, company specific training programs and processes that meet the requirements of PER-005. Companies should be able to demonstrate that their training programs are equal or superior to programs that are identified in the SAT process. – Identification of critical tasks and training necessary to ensure that system operators possess the skills necessary to complete the task is utility specific. Employing a cookie cutter approach as identified by the SAT process seems to largely ignore utility differences. Existing training programs should not be overhauled by use of the SAT unless these programs prove to be deficient.
WECC Reliability Coordination Comment Working Group	
SERC Standards Review Group	No further comments. The drafting team is to be commended for its diligent efforts on revisions to this draft standard.
PowerSouth Energy Cooperative	
PSEI	I believe there needs to be further clarification of a couple of points in R3. The change to "at least every 12 months" is a compliance nightmare. Does this mean each operator shall have 32 hours for any consecutive 12 month period? Could this mean every calendar year? Does this mean there is a compliance violation if an operator completes a course 12 months and 1 day from the last completion date? Some regional exercises are held annually for operators to complete the 32-hr emergency training. If this training is held a week later the next year, are the entities in violation? I know I will get the response that this is outside the scope of the drafting team, but entities need to know how they are expected to be compliant to the standard as it is written. The use of the term annually in this application differs from updating a document annually. Does it mean within 365 days? Also, the addition of company-specific adds another dynamic to the existing requirement. This now adds another layer of paperwork to the entities that are using vendors to meet their requirements. If an entity is strapped for bodies to create their own training courses, why burden them with linking tasks to vendor courses. This again opens the door to an auditor's opinion of what training is "company-specific" and what is adequate proof. It should remain worded as the current standard.
FRCC System Operator	FRCC does not agree that any Violation Severity Level should be higher than "Moderate" regarding

Organization	Question 5 Comments:
Subcommittee	system personnel training.
SRP	
Hydro One Networks	A measure for R1.1.1 is missing. We recommend adding the words "? and R1.1.1" to the end of Measure M1.1 and replace the word "revision" with "update and/or review". Considered adding the following to the High VSL for R3: "? OR The responsible entity provided less than 32 hours of emergency training to its System Operators (R3). Can we assume standard PER-004-2 Reliability Coordination - Staffing will eventually be updated and completed within Project 2006-01's timeframe?
Entergy - System Planning & Operation (Generation)	The second sentence of the PURPOSE section needs to be deleted as it is more of a statement which adds no value to the purpose. Suggest revising the PURPOSE to include concepts of R1 (see response to question 1 above). R2 - How would this apply to System Operators who are currently "qualified" by their entities to fulfill the on-duty position of a System Operator? i.e. - is there some sort of "grandfather" status? R2 - recommend modifying the phrase "at least one time" to "prior to independently staffing a real-time System Operator role", if the intent is to have the individual demonstrate the ability prior to being allowed to staff the on-duty System Operator position. R2 - is there any consideration to "proficiency" of a System Operator who has performed this task once? If an operator demonstrated the ability once 5 years ago, is it still ok? R2.1 - the length of time to verify System Operators abilities on new or modified tasks should not be longer that 3 months. Ideally, the System Operator would be trained prior to assuming the next watch. R3 - why 12 months instead of annually? Is there a difference? Is this intentional? R3 - the phrase "?required to maintain qualified personnel." should be deleted. "Qualified personnel" is not adequately defined or described and should not be used. M1.4 - seems to address on-going evaluations rather than a formal annual evaluation, unless a collective annual review of the items specified in M1.4 is the intent. M3 - what constitutes "training records"? Is the same as what is specified in M1.3? If so, then state as such. VSLs need to be reevaluated such that SEVERE would indicate a complete lack of a documented program. The scoring method used to rate several VSLs could be "shifted to the left" such that they fall into the Lower, Moderate, and High, instead of completely not using the Lower rating.PER-004-2R2 -

Organization	Question 5 Comments:
	consider strengthening the language of this requirement or deleting all together. The terms "particular attention" and "best available" are subjective. Regarding formatting when deleting requirements, is it proper to just shift everything up to fill in the deleted requirement or should it be annotated as "deleted" and the so that the remaining requirements still retain their original requirement number? For example, the proposed R2 was formerly R5. Changing the requirement number will create a logistical/tracking problem for many entities.
CenterPoint Energy	
Ohio Valley Electric Corporation	The Violation Severity Levels are all skewed towards the severe level. The Violation Severity levels should be skewed towards the lower level. With the lack of assessment or evaluation of the effectiveness of existing training programs required by PER-002 R3, why work to create a new training standard? With the lack of such an assessment, the work to develop a new training standard is not a judicious use of limited resources in order to strengthen the reliability of the bulk electric system. The NERC operation certification program already determines that operators possess the minimal requirements to reliably operate the bulk electric system. Why should a training program duplicate the certification process? Currently there is ample incentive to have operators trained on company-specific tasks. An operator who is not capable of performing company specific task will not remain an operator at that company.
City Of Tallahassee (TAL)	No Violation Severity Level should be higher than "Moderate" regarding system personnel training!
BCTC	The Standard drafting team stated in the implementation plan for R3 that it is presently in effect and will remain in effect, but the SDT added two significant changes to this requirement. This results in additional work by the entities to meet these changes and additional time to implement these changes. We recommend a 12 month implementation plan for the new R3 to allow entities to become compliant.? "5. Proposed Effective Date for Regulatory Approvals:" "5.2. Requirement R3 is presently in effect and will remain in effect upon approval of this Standard."? R3. At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. [Risk Factor: Medium] [Time Horizon: Long-term Planning]
ISO/RTO Council - Standards Review Committee	
WECC Operations Training Subcommittee	The WECC OTS questions the following statement and believes R3 has not been approved in PER-005 and would like the implementation date effective 12 months after the first day of the first calendar quarter following applicable regulatory approval:? "5. Proposed Effective Date for Regulatory Approvals:" "5.2. Requirement R3 is presently in effect and will remain in effect upon approval of this Standard."? R3. At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall

Organization	Question 5 Comments:
	provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. [Risk Factor: Medium] [Time Horizon: Long-term Planning]
MRO NSRS	R 1.4 should be deleted it is covered by R 1.1.1, by adding "and shall implement the changes identified" to R 1.1.1 will give clear direction to registered entities. M 1.2 It will be impossible to provide all training support material for off site audits. Training programs may consist of computers, energy management system, facilities (generation plants, back up control centers, etc.) these can not be "boxed up" and supplied to an off site audit. We would like to see a footnote or note that recognizes that certain training items, such as EMS systems, are excluded. M 1.3 places required items as measures that are not in R 1.3. Requirements need to match the Measurements, exactly. M 1.4 places required items as measures that are not in R 1.4. Requirements need to match the Measurements, exactly. Under Data retention, 1.4.2 and 1.4.3 need to state that they have been removed instead of deleting the statement. Is it possible to say “Not Applicable” under section 1.2 (“Compliance Monitoring Period and Reset”) of the standard PER-005-1; this standard has this phrase. On page 26 of 73, the NERC Drafting Team Guidelines dated July 1, 2007 states that the compliance monitoring period is when the performance or outcome of a requirement is measured. Is it true that this standard’s performance is not measured? The MRO doesn’t think the Compliance Enforcement Authority is going to want to have its hands tied for three years until they can assess whether the entity is on track to meeting the requirements listed in the standard. The use of the term “customer” is a little out there. In the PER-005 System Personnel Training Reference Document, the reference #1: Determining Task Performance Requirement lists a question “What response from the customer must be accomplished?” Please define what a customer is.
ONtario IESO	
AEP	
Great River Energy	R 1.4 should be deleted it is covered by R 1.1.1, by adding "and shall implement the changes identified" to R 1.1.1 will give clear direction to registered entities. M 1.4 should be moved to M1.1 with the recommended deletion of R1.4 above. GRE recommends that the percentages referenced under R2 and

Organization	Question 5 Comments:
	R3 in the VSLs be replaced with specific quantities of items missed.
Transmission System Operations - Baltimore Gas & Electric	The "Systematic Approach to Training" training should be offered as soon as possible. 24 months to complete a training program is a very aggressive schedule, so there is a need to start these activities in the near term.
PPL Electric Utilities	Shouldn't 5.3 read "Subrequirement R3.1 becomes effective..." rather than "Requirement R3.1 becomes effective..."
Pacific Gas and Electric Company	Under "5. Proposed Effective Date for Regulatory Approvals:" "5.2. Requirement R3 is presently in effect and will remain in effect upon approval of this Standard." Since PER-005 has not been approved, R3 "At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel.", has not been approved. This is a change in the language from PER-002 R4 "For personnel identified in Requirement R2, each Transmission Operator and Balancing Authority shall provide its operating personnel at least five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel." We recommend the implementation date effective 12 months after the first day of the first calendar quarter following applicable regulatory approval"
Santee Cooper	
American Transmission Company	In R3, ATC suggests to move "At least every 12 months" to between "training" and "applicable". We feel that it changes the meaning of the sentence to more accurately reflect that each operator is required to have the required training within a 12 month window. ATC continues disagrees with the SPT SDT VSL's for Requirement 2 and 3. (Please see our comments during the last comment period.) Requirement 2 and 3: The VSLs continue to be based on pass/fail concept and do not represent the extent to which an entity did not comply with the requirement. Requirement 2 should include a component that represents the number of task(s) not completed. Requirement 3 should include a component that represents the number of emergency hours that not completed. PER-004-2 Proposed Effective Date: ATC believes that there is an error in the proposed effective date section based on our review of the red-line version of PER-004-2. The proposed effective date states that requirement 5 is being deleted but it seems that requirement 5 is being re-numbered as requirement 2. This inconsistency should be corrected.
Standards Interface Subcommittee/Compliance Elements Drafting Resource Pool	Standard – R1 PER-005-1 Attributes of the requirement Binary Timing X Omission X

Organization	Question 5 Comments:
	Communication Quality Other General comment - Some of the requirements listed in this requirement (R1.1.1 & R1.4) include a timing element "annually" – the CEDRP suggest that more definition be associated with the annual requirements. Annual requirements appear to accept "anytime during two consecutive calendar years" which can result in the task being performed during December of one year followed by the task being performed in January of the next year (which we suspect would not meet the SDT intent). SDT Proposed Lower VSL: None CEDRP Proposed VSL: (blank) SDT Proposed Moderate VSL: The responsible entity failed to provide evidence that it updated its company-specific reliability-related tasks to identify new or modified tasks on an annual basis (R1.1.1) OR The responsible entity failed to provide evidence of evaluating its training program to identify needed changes to its training program(s).(R1.4) CEDRP Proposed VSL: The entity did create a list of reliability tasks – but did the list was incomplete or was not company specific (R1.1) OR The entity performed an update of the BES company specific reliability tasks, but the update did not occur within the timing criteria specified in the requirement (R1.1.1) OR The entity conducted an evaluation of its training program, but the evaluation did not occur within the timing criteria specified in the requirement (R1.4) OR The entity conducted an annual evaluation as required in requirement 1.4, but failed to identify needed changes (R1.4) OR The entity conducted an annual evaluation as required in requirement 1.4, identified needed changes, but failed to implement changes (R1.4)

Organization	Question 5 Comments:
	SDT Proposed High VSL: The responsible entity failed to design and develop learning objectives and training materials based on the BES company specific reliability related tasks (when developing a new or modifying an existing training program). (R1.2) CEDRP Proposed VSL: The entity implemented/uses a systematic approach to training, but one or more elements of the systematic approach are not included in the program (R1) OR The entity failed to perform a annual update of BES company specific reliability tasks (R1.1.1) OR The responsible entity failed to design and develop learning objectives based on the BES company specific reliability related tasks (when developing a new or modifying an existing training program). (R1.2) OR The entity designed and created learning objectives but did not create associated training material (R1.2) OR The entity delivered training but training delivered did not include all learning objectives/training material as stated in requirement 1.2 (R1.3) OR The entity did not conduct an evaluation as stated in requirement 1.4 (R1.4) SDT Proposed Severe VSL: When developing a new or modifying an existing training program, the responsible entity failed to prepare a company-specific reliability-related tasks (R1.1) OR When developing a new or modifying an existing training program the responsible entity failed to deliver training based on the BES company specific reliability related tasks. (R1.3) CEDRP Proposed VSL: The entity does not use a systematic approach to training (R1) OR When developing a new or modifying an existing training program, the responsible entity failed to prepare a company-specific reliability-related tasks (R1.1) OR When developing a new or modifying an existing training program the responsible entity failed to

Organization	Question 5 Comments:
	deliver training based on the BES company specific reliability related tasks. (R1.3) FERC Guidance for VSLs (Analysis based on CEDRP Proposed Changes) 1. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? No 2. Is the VSL assignment a binary requirement? No Is it truly a “binary” requirement? N/A If yes, is the VSL assignment consistent with other binary requirement assignments? N/A Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? The CEDRP suggests that the SDT review or further define “annual” as it applies to this set of requirements. 3. Does the VSL redefine or undermine the stated requirement? No 4. Is the VSL based on a single violation of the requirement (not multiple violations)? Yes Standard – R2 PER-005-1 Attributes of the requirement Binary Timing X Omission X Communication Quality Other

Organization	Question 5 Comments:
	SDT Proposed Lower VSL: None CEDRP Proposed VSL: (blank) SDT Proposed Moderate VSL: The responsible entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2) CEDRP Proposed VSL: Entity verified capability of all operators to perform new or modified tasks, but the verification did not occur within the timing criteria specified in the requirement (R2.1) SDT Proposed High VSL: The responsible entity verified at least 70% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2) OR The responsible entity failed to verify its system operator's capabilities to perform each new or modified task within six months of making a modification to its BES company specific reliability related tasks. (R2.1) CEDRP Proposed VSL: Entity verified capability of operators, but did not verify capability of all operators (R2) OR Entity verified the capability of all operators, but the verification was incomplete (based on list tasks identified in 1.1(R2) OR Entity verified capability of operators for new or modified tasks, but did not verify capability of all operators (R2.1) SDT Proposed Severe VSL: The responsible entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2) CEDRP Proposed VSL: Entity failed to verify capability of any operators (R2) OR

Organization	Question 5 Comments:
	Entity failed to verify operators capability for new or modified tasks (R2.1) FERC Guidance for VSLs (Analysis based on CEDRP Proposed Changes) 1. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? No 2. Is the VSL assignment a binary requirement? No Is it truly a "binary" requirement? N/A If yes, is the VSL assignment consistent with other binary requirement assignments? N/A Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? Yes 3. Does the VSL redefine or undermine the stated requirement? No 4. Is the VSL based on a single violation of the requirement (not multiple violations)? Yes Standard – R3 PER-005-1 Attributes of the requirement Binary Timing X Omission X Communication Quality X Other SDT Proposed Lower VSL: None CEDRP Proposed VSL: (blank)

Organization	Question 5 Comments:
	SDT Proposed Moderate VSL: The responsible entity provided at least 32 hours of emergency operations training to at least 90% but less than 100% of their System Operators. (R3) CEDRP Proposed VSL: The entity provided 32 hours of training, but the training did not occur within the timing criteria specified in the requirement. (R3) SDT Proposed High VSL: The responsible entity provided at least 32 hours of emergency operations training to at least 70% but less than 90% of its System Operators. (R3) CEDRP Proposed VSL: The entity did deliver emergency operations training, but did not provide 32 hours of emergency operations training.(R3) OR The entity provided 32 hours of training within the timing criteria as specified in the requirement, but not all operators were trained. (R3) SDT Proposed Severe VSL: The responsible entity provided 32 hours of emergency operations training to less than 70% of its System Operators (R3) OR The responsible entity did not include simulation technology replicating the operational behavior of the BES in its emergency operations training. (R3.1) CEDRP Proposed VSL: The entity did not provide training(R3) OR The entity that has authority/control of IROLs did not provide training (R3.1) OR The entity that has authority/control of IROLs provided training, but the training did not include simulation technology that replicates behavior of the BES during normal and emergency conditions. (R3.1) FERC Guidance for VSLs (Analysis based on CEDRP Proposed Changes) 1. Will the VSL assignment signal entities that less compliance than has been historically achieved is

Organization	Question 5 Comments:
	condoned? No 2. Is the VSL assignment a binary requirement? No Is it truly a “binary” requirement? N/A If yes, is the VSL assignment consistent with other binary requirement assignments? N/A Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? Yes 3. Does the VSL redefine or undermine the stated requirement? No 4. Is the VSL based on a single violation of the requirement (not multiple violations)? Yes
Public Service Commission of South Carolina	The PSCSC suggests that the concept of "Systematic Approach to Training", used in PER-005-1, be defined in the standard or in the Glossary pertaining to all standards.
Duke Energy	As we read this standard, we see nothing that precludes the use of contractors to perform System Operators' tasks, or training of the System Operators. We agree that the use of contractors is one of the ways to train or fulfill system operator positions.
FirstEnergy	FE has the following additional comments:1. With regard to R1.1.1, the task list would not need to be updated if no new or modified tasks were identified. Therefore, the subrequirement could be slightly reworded as follows: "R1.1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall update its list of BES company-specific reliability-related tasks performed by its System Operators at least annually when new or modified tasks for inclusion in training have been identified." Also, the Measures were written so that they align with the Requirements and their respective subrequirements. However, subrequirement R1.1.1 seems to be missing a specific measure that requires proof that the training program task list was updated annually if new or modified tasks were identified per R1.1. The SDT should consider adding a new measure M1.1.1 for R1.1.1.2. Since R3.1 is only applicable for entities that operate with IROLs, the measure for R3 should be consistently worded. We suggest changing M3.1 as follows: "Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall have available

Organization	Question 5 Comments:
	for inspection training records that provide evidence that each System Operator received emergency operations training using simulation technology, as specified in R3.1."3. The reference document is a good guide for entities to use to reference industry recognized SAT processes as well as helping to determine their company-specific reliability-related operator tasks. However, this document may not be readily available to industry once the standard is enforceable since the standard does not provide a direct link to this reference material. Standards should be "all inclusive" and provide all the information needed. The SDT should consider adding a "Part F" to the standard (as allowed by NERC standard drafting guidelines) that provides a link to this reference material. This information should be transparent to industry when reviewing the standard for compliance and the SDT's work in preparing the reference document will be put to good use.
ISO New England Inc.	

Consideration of Comments on 4th Draft of System Personnel Training Standard — Project 2006-01

The System Personnel Training Standard Drafting Team (SPT SDT) thanks all commenters who submitted comments on revisions for the 4th draft of the System Personnel Training standard. This standard was posted for a 30-day public comment period from June 18, 2008 through July 17, 2008. The stakeholders were asked to provide feedback on the standard through a special electronic Standard Comment Form. There were 41 sets of comments, including comments from more than 140 different people from approximately 70 companies representing 8 of the 10 Industry Segments as shown in the table on the following pages.

In this document, the SPT SDT's consideration of comments is provided in blue text immediately following each comment submitted for each question. A summary response to each question is highlighted following each question. The following conforming modifications were made to the standard:

- Modified the Effective Date for Requirement R3 to provide clarity in what Requirement is presently in effect.
- Modified Requirement R1.1.1 to "each calendar year" to provide clarity.
- Modified Measure M1.1 to provide for clarity in measurement of compliance for Requirements R1.1 and R1.1.1.

The drafting team was not able to resolve all suggestions for modifications to the standard. Because the standard will require some entities to change their existing practices with respect to system operator training, the drafting team does not expect that additional postings of the standard will result in significant improvements in stakeholder consensus. Some of the minority views that remain unresolved include:

- Several commenters requested modifications to the effective date to allow a longer time for compliance. The SDT explained that the need for improved system operator training was identified in the Blackout Report and in Order 693. Entities registered to perform the functions of the Reliability Coordinator, Transmission Operator and Balancing Authority should already have system operator training and programs or operator qualification programs in place to comply with PER-002-0 — Operating Personnel Training and PER-005-1 — Reliability Coordination Staffing.
- Several commenters requested that the SDT add more specificity to the standard regarding the term, "Systematic Approach to Training (SAT)." The SDT explained that there are several different terms used to describe this approach to developing training programs. The SDT felt that adding a definition would force some entities into modifying their existing practices, without any additional benefit to reliability. There are many variations to the SAT approach to training, but all include the steps identified in subrequirements R1.1 through R1.4.
- Several comments indicated that the standard should not specify the use of the SAT process. This is a training process that has been widely recognized in many different occupational fields as an effective and efficient method of linking training to specific performance on designated tasks. The SAR for this project specified that the requirements in the standard must mandate use of the SAT process – one of the directives in FERC Order 693 was to modify the existing training standard to require the use of the SAT methodology in the development of new training programs.

- Several commenters asked the drafting team to include a reference with a comprehensive reliability-related task list. The SDT did not include such a list as in previous postings, the SDT did propose a list and commenters indicated such a list was problematic as it was not written to be company-specific, and could have been interpreted as requiring training on all the tasks, whether applicable or not.

- Several commenters stated that the use of simulators should not be mandatory. Order 693 included a directive to modify the existing training standard to include the use of simulators by reliability coordinators, transmission operators, and balancing authorities that have operational control over a significant portion of load and generation. The language in the proposed standard does not require that any entity purchase a system-specific simulator. The use of simulators as effective training tools, particularly for learning how to react to events that occur infrequently, is widely accepted in other industries as an effective and efficient method of providing training and practice. Simulators are used in many industries where the ramifications of an error have far-reaching consequences to safety – including airline pilots, shipping pilots, and operators of control systems in chemical, oil and gas industries.

- Some commenters indicated that some VSLs do not provide as many options as possible for describing noncompliant performance.

In this "Consideration of Comments" document stakeholder comments have been arranged so that it is easier to see the responses associated with each question. All comments received on the standard can be viewed in their original format at:

http://www.nerc.com/~filez/standards/System-Personnel-Training.html

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Gerry Adamski, at 609-452-8060 or at gerry.adamski@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Reliability Standards Development Procedures: http://www.nerc.com/standards/newstandardsprocess.html.

Index to Questions, Comments, and Responses

The Industry Segments are:

1 — Transmission Owners
2 — RTOs, ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 – Regional Reliability Organizations, Regional Entities

<table>
<tr><th>Name</th><th>Organization</th><th>RBB Segment</th><th></th></tr>
<tr><td>Denise Koehn</td><td>Bonneville Power Administration</td><td>1 - Transmission Owners, 3 - Load-serving Entities, 5 - Electric Generators, 6 - Electicity Brokers, Aggregators</td><td>
<table>
<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th></tr>
<tr><td>1.</td><td>Richard Ellison</td><td>Transmission Dispatch</td><td>WECC</td><td>1</td></tr>
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<tr><td>Bob Ritzman</td><td>NorthWestern Corporation</td><td>1 - Transmission Owners</td><td></td></tr>
<tr><td>Mike Clime</td><td>Ameren</td><td>1 - Transmission Owners, 3 - Load-serving Entities, 5 - Electric Generators</td><td></td></tr>
<tr><td>Guy Zito</td><td>NPCC</td><td>10 - Regional Reliability Organization/Regional Entity</td><td>
<table>
<tr><th></th><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th></tr>
<tr><td>1.</td><td>Ed Thompson</td><td>Consolidated Edison Co. of New York, Inc.</td><td>NPCC</td><td>1</td></tr>
<tr><td>2.</td><td>David Kiguel</td><td>Hydro One Networks Inc.</td><td>NPCC</td><td>1</td></tr>
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Name	Organization	RBB Segment						
				3.	Sylvain Clermont	Hydro-Quebec TransEnergie	NPCC	1
				4.	Frederick White	Northeast Utilities	NPCC	1
				5.	Roger Champagne	Hydro-Quebec TransEnergie	NPCC	2
				6.	Ron Falsetti	Independent Electricity System Operator	NPCC	2
				7.	Kathleen Goodman	ISO - New England	NPCC	2
				8.	Randy MacDonald	New Brunswick System Operator	NPCC	2
				9.	Gregory Campoli	New York Independent System Operator	NPCC	2
				10.	Michael Ranalli	National Grid	NPCC	3
				11.	Ronald E. Hart	Dominion Resources, Inc.	NPCC	5
				12.	Ralph Rufrano	New York Power Authority	NPCC	5
				13.	Brian L. Gooder	Ontario Power Generation Incorporated	NPCC	5
				14.	Michael Gildea	Constellation Energy	NPCC	6
				15.	Brian D. Evans-Mongeon	Utility Services	NPCC	6
				16.	Donald E. Nelson	Massachusetts Dept. of Public Utilities	NPCC	9
				17.	Brian Hogue	NPCC	NPCC	10

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<tr><th>Name</th><th>Organization</th><th>RBB Segment</th><th></th></tr>
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<tr><td>18.</td><td>Alan Adamson</td><td>New York State Reliability Council</td><td>NPCC</td><td>10</td></tr>
<tr><td>19.</td><td>Guy Zito</td><td>NPCC</td><td>NPCC</td><td>10</td></tr>
<tr><td>20.</td><td>Lee Pedowicz</td><td>NPCC</td><td>NPCC</td><td>10</td></tr>
<tr><td>21.</td><td>Gerry Dunbar</td><td>NPCC</td><td>NPCC</td><td>10</td></tr>
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<tr><td>Glen Boyle</td><td>PJM Interconnection</td><td>2 - RTOs and ISOs</td><td>
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<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th></tr>
<tr><td>1.</td><td>Mike Sitarchyk</td><td></td><td></td></tr>
<tr><td>2.</td><td>Tom Moleski</td><td></td><td></td></tr>
<tr><td>3.</td><td>Frank Koza</td><td></td><td></td></tr>
<tr><td>4.</td><td>Al DiCaprio</td><td></td><td></td></tr>
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<tr><td>Tim Loepker</td><td>Seattle City Light</td><td>Not Applicable</td><td></td></tr>
<tr><td>Roman Carter</td><td>Southern Company Transmission</td><td>3 - Load-serving Entities, 1 - Transmission Owners</td><td>
<table>
<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th><th></th></tr>
<tr><td>1.</td><td>Jim Busbin</td><td>Southern Transmission</td><td>SERC</td><td>1</td></tr>
<tr><td>2.</td><td>Fred Waites</td><td>Alabama Power</td><td>SERC</td><td>3</td></tr>
<tr><td>3.</td><td>Rocky Williamson</td><td>Georgia Power</td><td>SERC</td><td>3</td></tr>
<tr><td>4.</td><td>Marc Butts</td><td>Southern Transmission</td><td>SERC</td><td>1</td></tr>
<tr><td>5.</td><td>JT Wood</td><td>Southern Transmission</td><td>SERC</td><td>1</td></tr>
<tr><td>6.</td><td>James Ford</td><td>Southern Transmission</td><td>SERC</td><td>1</td></tr>
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<tr><td>Michael Scott</td><td>Arizona Public Service Company</td><td>1 - Transmission Owners</td><td></td></tr>
<tr><td>Kris Manchur</td><td>Manitoba Hydro</td><td>1 - Transmission Owners, 3 - Load-serving Entities, 6 - Electicity Brokers, Aggregators , 5 - Electric Generators</td><td></td></tr>
</table>

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<tr><th>Name</th><th>Organization</th><th>RBB Segment</th><th></th></tr>
<tr><td>Brian S. Dunsmore</td><td>Wapa (Loveland, Co)</td><td>5 - Electric Generators, 9 - Federal, State, Provincial Regulatory, or other Government Entities, 10 - Regional Reliability Organization/Regional Entity, 3 - Load-serving Entities, 1 - Transmission Owners</td><td></td></tr>
<tr><td>Richard Kafka</td><td>Pepco Holdings, Inc. - Affiliates</td><td>3 - Load-serving Entities, 1 - Transmission Owners</td><td>
<table>
<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th></tr>
<tr><td>1.</td><td>Valerie Hildebrand</td><td>Potomac Electric Power Co</td><td>RFC 1</td></tr>
<tr><td>2.</td><td>Vic Davis</td><td>Delmarva Power & Light</td><td>RFC 1</td></tr>
<tr><td>3.</td><td>Brian Clark</td><td>Delmarva Power & Light</td><td>RFC 3</td></tr>
</table>
</td></tr>
<tr><td>Richard Kinas</td><td>Orlando Utilities Commission</td><td>1 - Transmission Owners, 6 - Electicity Brokers, Aggregators , 5 - Electric Generators, 3 - Load-serving Entities</td><td></td></tr>
<tr><td>Brent Ingebrigtson</td><td>E.ON U.S. LLC</td><td>6 - Electicity Brokers, Aggregators , 5 - Electric Generators, 3 - Load-serving Entities, 1 - Transmission Owners</td><td></td></tr>
<tr><td>Linda Perez</td><td>WECC Reliability Coordination</td><td>10 - Regional Reliability</td><td></td></tr>
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<tr><th>Name</th><th>Organization</th><th>RBB Segment</th><th></th></tr>
<tr><td></td><td>Comment Working Group</td><td>Organization/Regional Entity</td><td></td></tr>
<tr><td>Margaret Stambach</td><td>SERC Standards Review Group</td><td>10 - Regional Reliability Organization/Regional Entity</td><td>
<table>
<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th><th></th></tr>
<tr><td>1.</td><td>John Neagle</td><td>AECI</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>2.</td><td>Alan Jones</td><td>Alcoa</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>3.</td><td>Charles Wear</td><td>Alcoa</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>4.</td><td>Mike Clime</td><td>Ameren</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>5.</td><td>Robert Thomasson</td><td>Big Rivers</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>6.</td><td>Mark D. Brown</td><td>Entergy Transmission</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>7.</td><td>Phillip Jarreau</td><td>Entergy Generation</td><td>SERC</td><td>5, 6</td></tr>
<tr><td>8.</td><td>Brian Haggard</td><td>GSOC</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>9.</td><td>Paul Turner</td><td>GSOC</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>10.</td><td>Charlie Deleon</td><td>NRG Energy</td><td>SERC</td><td>1, 3, 4</td></tr>
<tr><td>11.</td><td>Tim Hattaway</td><td>PowerSouth</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>12.</td><td>Bill Thigpen</td><td>PowerSouth</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>13.</td><td>Kristi Boland</td><td>Santee Cooper</td><td>SERC</td><td>1, 3, 9</td></tr>
<tr><td>14.</td><td>Rene Free</td><td>Santee Cooper</td><td>SERC</td><td>1, 3, 9</td></tr>
<tr><td>15.</td><td>Glenn Stephens</td><td>Santee Cooper</td><td>SERC</td><td>1, 3, 9</td></tr>
<tr><td>16.</td><td>Steve Hebert</td><td>SCE&G</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>17.</td><td>Steve Orr</td><td>SCE&G</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>18.</td><td>Charles Evans</td><td>SMEPA</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>19.</td><td>Dan Kay</td><td>SMEPA</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>20.</td><td>Steve McElhaney</td><td>SMEPA</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>21.</td><td>James Ford</td><td>Southern Company</td><td>SERC</td><td>1, 3</td></tr>
<tr><td>22.</td><td>Edd Forsythe</td><td>TVA</td><td>SERC</td><td>1, 3, 9</td></tr>
<tr><td>23.</td><td>Rocky Roberts</td><td>TVA</td><td>SERC</td><td>1, 3, 9</td></tr>
<tr><td>24.</td><td>John Troha</td><td>SERC Reliability Corp.</td><td>SERC</td><td>10</td></tr>
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<tr><td>Tim</td><td>PowerSouth</td><td>3 - Load-serving</td><td></td></tr>
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<tr><td>Hattaway</td><td>Energy Cooperative</td><td>Entities, 5 - Electric Generators, 4 - Transmission-dependent Utilities</td><td></td></tr>
<tr><td>Todd Lietz</td><td>PSEI</td><td>1 - Transmission Owners</td><td></td></tr>
<tr><td>Donna Howard</td><td>FRCC System Operator Subcommittee</td><td>10 - Regional Reliability Organization/Regional Entity, 5 - Electric Generators, 3 - Load-serving Entities, 4 - Transmission-dependent Utilities, 1 - Transmission Owners</td><td>
<table>
<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th><th></th></tr>
<tr><td>1.</td><td>Steve Joseph</td><td>Tampa Electric Company</td><td>FRCC</td><td>3</td></tr>
<tr><td>2.</td><td>Alan Gale</td><td>City of Tallahassee</td><td>FRCC</td><td>5</td></tr>
<tr><td>3.</td><td>Charles Wubbena</td><td>Seminole Electric Cooperative</td><td>FRCC</td><td>4</td></tr>
<tr><td>4.</td><td>Curtis Lloyd</td><td>Progress Energy Florida</td><td>FRCC</td><td>3</td></tr>
<tr><td>5.</td><td>Jeff Gooding</td><td>Florida Power & Light Company</td><td>FRCC</td><td>1</td></tr>
<tr><td>6.</td><td>Jimmy McDougald</td><td>Lee County Electric Cooperative</td><td>FRCC</td><td>NA</td></tr>
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<tr><td>Kristie Cocco</td><td>SRP</td><td>1 - Transmission Owners, 5 - Electric Generators, 6 - Electicity Brokers, Aggregators , 3 - Load-serving Entities</td><td></td></tr>
<tr><td>Alessia Dawes</td><td>Hydro One Networks</td><td>1 - Transmission Owners, 3 - Load-serving Entities</td><td></td></tr>
<tr><td>Will Franklin</td><td>Entergy - System Planning & Operation (Generation)</td><td>6 - Electicity Brokers, Aggregators</td><td>
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<tr><td>1.</td><td>Phillip Jarreau</td><td>Entergy SPO (Generatin)</td><td>SERC</td><td>NA</td></tr>
<tr><td>2.</td><td>Margaret Hebert</td><td>Entergy SPO (Generation)</td><td>SERC</td><td>NA</td></tr>
<tr><td>3.</td><td>David Plant</td><td>Entergy SPO (Generation)</td><td>SERC</td><td>NA</td></tr>
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<tr><td>4.</td><td>Joel Plessinger</td><td>Entergy SPO (Generation)</td><td>SERC</td><td>NA</td></tr>
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<tr><td>Brad Calhoun</td><td>CenterPoint Energy</td><td>1 - Transmission Owners</td><td></td></tr>
<tr><td>George Brady</td><td>Ohio Valley Electric Corporation</td><td>1 - Transmission Owners</td><td>
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<tr><td>1.</td><td>Scott Cunningham</td><td>Ohio Valley Electric Corporation</td><td>RFC</td><td>1</td></tr>
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<tr><td>Alan Gale</td><td>City Of Tallahassee (TAL)</td><td>3 - Load-serving Entities, 5 - Electric Generators, 1 - Transmission Owners</td><td></td></tr>
<tr><td>Thomas Fung</td><td>BCTC</td><td>2 - RTOs and ISOs</td><td></td></tr>
<tr><td>Albert DiCaprio</td><td>ISO/RTO Council - Standards Review Committee</td><td>2 - RTOs and ISOs</td><td></td></tr>
<tr><td>Lauri Jones</td><td>WECC Operations Training Subcommittee</td><td>1 - Transmission Owners, 3 - Load-serving Entities, 10 - Regional Reliability Organization/Regional Entity</td><td>
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<tr><td>2.</td><td>Richard Krajewski</td><td>PNM</td><td>WECC</td><td>1, 3</td></tr>
<tr><td>3.</td><td>Brian Reich</td><td>IPCO</td><td>WECC</td><td>1, 3</td></tr>
<tr><td>4.</td><td>Dick Schwarz</td><td>PNSC</td><td>WECC</td><td>10</td></tr>
<tr><td>5.</td><td>Warren Maxvill</td><td>AVA</td><td>WECC</td><td>1, 3</td></tr>
<tr><td>6.</td><td>Hank LuBean</td><td>DOPD</td><td>WECC</td><td>1, 3</td></tr>
<tr><td>7.</td><td>Robert Eubank</td><td>WECC</td><td>WECC</td><td>10</td></tr>
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<tr><td>Joe DePoorter</td><td>MRO NSRS</td><td>6 - Electicity Brokers, Aggregators , 3 -</td><td>
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Name	Organization	RBB Segment	
		Load-serving Entities, 4 - Transmission-dependent Utilities, 5 - Electric Generators	1. Carol Gerou — Minnesota Power — MRO — 1, 3, 5, 6 2. Ken Goldsmith — Alliant Energy — MRO — 4 3. Pam Sordet — Xcel Energy — MRO — 1, 3, 5, 6 4. Tom Mielnik — MidAmerican — MRO — 1, 3, 5, 6 5. Dave Rudolph — BEPC — MRO — 1, 3, 5, 6 6. Marie Knox — MISO — MRO 7. Chuck Lawrence — ATC — MRO 8. Laura Elsenpeter — MRO — MRO — 10 9. Larry Brusseau — MRO — MRO — 10
Ron Falsetti	Ontario IESO	2 - RTOs and ISOs	
Thad Ness	AEP	3 - Load-serving Entities, 5 - Electric Generators, 6 - Electicity Brokers, Aggregators , 1 - Transmission Owners	
Joe Knight	Great River Energy	1 - Transmission Owners, 6 - Electicity Brokers, Aggregators , 5 - Electric Generators, 3 - Load-serving Entities	
Edward Carmen	Transmission System Operations - Baltimore Gas & Electric		
Russell Fernsler	PPL Electric Utilities	1 - Transmission Owners	
Lauri Jones	Pacific Gas and Electric Company	1 - Transmission Owners, 3 - Load-	

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<tr><td></td><td></td><td>serving Entities, 5 - Electric Generators</td><td></td></tr>
<tr><td>Terry L. Blackwell</td><td>Santee Cooper</td><td>1 - Transmission Owners</td><td>
<table>
<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th></tr>
<tr><td>1.</td><td>S. T. Abrams</td><td>Santee Cooper</td><td>SERC</td><td>1</td></tr>
<tr><td>2.</td><td>Glenn Stephens</td><td>Santee Cooper</td><td>SERC</td><td>1</td></tr>
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<tr><td>4.</td><td>Kristi Boland</td><td>Santee Cooper</td><td>SERC</td><td>1</td></tr>
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<tr><td>Jason Shaver</td><td>American Transmission Company</td><td>1 - Transmission Owners</td><td></td></tr>
<tr><td>John Blazekovich</td><td>Standards Interface Subcommittee/Compliance Elements Drafting Resource Pool</td><td>N/A</td><td></td></tr>
<tr><td>Phil Riley</td><td>Public Service Commission of South Carolina</td><td>9 - Federal, State, Provincial Regulatory, or other Government Entities</td><td>
<table>
<tr><th>Additional Member</th><th>Additional Organization</th><th>Region</th><th>Segment Selection</th></tr>
<tr><td>1.</td><td>Mignon L. Clyburn</td><td></td><td>SERC</td><td>9</td></tr>
<tr><td>2.</td><td>Elizabeth B. Fleming</td><td></td><td>SERC</td><td>9</td></tr>
<tr><td>3.</td><td>G. O'Neal Hamilton</td><td></td><td>SERC</td><td>9</td></tr>
<tr><td>4.</td><td>John E. Howard</td><td></td><td>SERC</td><td>9</td></tr>
<tr><td>5.</td><td>Randy Mitchell</td><td></td><td>SERC</td><td>9</td></tr>
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<tr><td>6.</td><td>Swain E. Whitfield</td><td></td><td>SERC</td><td>9</td></tr>
<tr><td>7.</td><td>David A. Wright</td><td></td><td>SERC</td><td>9</td></tr>
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<tr><td>Greg Rowland</td><td>Duke Energy</td><td>5 - Electric Generators, 3 - Load-serving Entities, 6 - Electicity Brokers, Aggregators , 1 - Transmission Owners</td><td></td></tr>
<tr><td>Sam Ciccone</td><td>FirstEnergy</td><td>1 - Transmission Owners, 6 - Electicity Brokers, Aggregators , 5 - Electric Generators, 3 - Load-serving Entities</td><td>
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<tr><td>2.</td><td>Jim Eckels</td><td>FE</td><td>RFC</td></tr>
<tr><td>3.</td><td>John Wilson</td><td>FE</td><td>RFC</td></tr>
<tr><td>4.</td><td>Dave Folk</td><td>FE</td><td>RFC</td></tr>
<tr><td>5.</td><td>Doug Hohlbough</td><td>FE</td><td>RFC</td></tr>
<tr><td>6.</td><td>Hugh Bullock</td><td>FE</td><td>RFC</td></tr>
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<tr><td>Kathleen Goodman</td><td>ISO New England Inc.</td><td>2 - RTOs and ISOs</td><td></td></tr>
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1. The System Personnel Training standard drafting team (SPT SDT) revised the effective dates for this Standard to provide for a shorter period for implementation of the training program while allowing for a longer implementation period for implementing the use of training simulation/simulators. Do you agree that the revised effective dates provide for sufficient time to establish a training program, as specified in R1? If not, please explain in the comment area.

Summary Consideration:

With almost an even distribution of "yes" and "no" votes of those industry participants responding, there was no clear industry consensus on this issue. Of those responding no, the majority disagreed with the shorter implementation period for implementing the training program. In the responses to comments, the SPT SDT explained that there was actually a longer period of time available to them if they utilized the period between NERC BOT approval and the requirement implementation date. The SPT SDT also explained FERC's concern that the need for the standard was initially identified in the 2003 Black-out Report and again in Order 693.

Organization	Question 1:	Question 1 Comments:
Ameren	No	Everyone who does training now is not necessarily familiar with developing training using the systematic approach. So some trainers will have to acquire these skills. Also some companies will have to hire another person to develop and write the training lessons using the systematic approach. It might take that person more than 6 months just to become familiar with the jobs and the tasks being performed before that person could even begin to do any task listing and developing of any training. So essentially you would have less than 2 years to develop and deliver the training. Three years was a short period of time after implementation of the Standard to have all of the requirements done. Two years is un-realistic.

Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada):

- **NERC filing of BOT approved standard with FERC**
- **FERC staff review for development of NOPR**
- **NOPR comment period**
- **FERC staff review of NOPR comments**

Organization	Question 1:	Question 1 Comments:
• **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
PJM Interconnection	No	This change was surprising, as the only comment made on the previous draft was to increase the implementation time. The SDT has shortened the implementation time, without providing justification for the change.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
Southern Company	No	We suggest the effective date be 36 months for both not 24 and 36. The 36 months will allow the

Organization	Question 1:	Question 1 Comments:
Transmission		industry the time required to develop quality training programs
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
SERC Standards Review Group	No	Our group supports the return of the training program effective date to 36 months after the first day of the first calendar quarter following regulatory approval. We feel that a 36-month implementation period is needed to allow responsible entities to develop quality training programs under the systematic approach required by the standard.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR**		

Organization	Question 1:	Question 1 Comments:
• **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
PowerSouth Energy Cooperative	No	Reducing the time frame from 36 to 24 months is not appropriate for the implementation of quality training. The evaluation and purchase process, lead time and cost to implement simulators as stated in R3.1 is unreasonable and does not necessarily improve reliability.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval**		

Organization	Question 1:	Question 1 Comments:
In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.		
Ohio Valley Electric Corporation	No	A longer time period of 36 months better represents the industry project process of planning, budgeting, and construction. The scope of training as outlined in this standard would certainly be considered a project. Year 1 (months 1-12) is the planning year. Year 2 (months 13-24) is the budgeting year. Year 3 (months 25-36) is the purchase and construction year. Having a shorter implementation period would not give utilities an opportunity to appropriately address and consider each stage of the project process which could lead to significant errors in either the planning, budgeting, or construction (implementation) stage.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
BCTC	No	The previous version of the standard included 36 months for implementing the re-defined training program and all the new requirements for a training program. The reduction in time from 36 months to 24 months is not acceptable. The 36 months implementation period, based on the amount of time needed to create the task lists of company-specific reliability related tasks performed by its System Operators, to

Organization	Question 1:	Question 1 Comments:
		conform with a systematic approach to training and the RRO's definition of the Bulk Electric System, and to provide the one time training to all system operators should be retained.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
WECC Operations Training Subcommittee	No	The previous version of the standard included 36 months for implementing the training program. The WECC OTS would like to see this time frame returned, based on the amount of time needed to create the task lists of company-specific reliability related tasks performed by its System Operators, utilizing a systematic approach to training, the regions definition of the Bulk Electric System and the time to provide the one time training to all system operators.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC**		

Organization	Question 1:	Question 1 Comments:
• **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
MRO NSRS	No	The original time frame of 36 months allowed entities to formulate an effective plan, ensuring compliance to the new Standard and requirements, as well as providing the training that will be needed when the MISO ancillary service market implementation scheduled for September 9, 2008. The systematic approach to training (SAT) process is a detailed process where entities are going to need to be trained in order to fulfill the requirements. There will need to be a substantial capital investment by entities who must comply with this updated Standard. By reducing the time frame to 24 months the Standard will not be as effective and may lead to possible shortcomings in the detailed training that is required for System Operators.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments**		

Organization	Question 1:	Question 1 Comments:
• **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
AEP	No	The Requirements R1 and R2 implementation period should not be shortened but rather remain at the 3 year implementation requirement previously specified in Draft 3 of the standard. We believe it will take the 3 years to assure proper development of the training and objectives required to support all reliability tasks, and to verify every existing operator's capability to perform every identified reliability task as specified in R2. For some operators, the majority of their tasks may be reliability tasks.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		

Organization	Question 1:	Question 1 Comments:
Great River Energy	No	The original time frame of 36 months allowed entities to formulate an effective plan, ensuring compliance to the new Standard and Requirements, as well as providing the training that will be needed when the MISO ancillary service market is implemented which is scheduled for September 9, 2008. The systematic approach to training (SAT) process is a detailed process where entities are going to need to be trained in order to fulfill the requirements. There will need to be a substantial capital investment by entities that must comply with this updated Standard. By reducing the time frame to 24 months the Standard will not be as effective and may lead to possible shortcomings in the detailed training that is required for System Operators.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
Pacific Gas and Electric Company	No	There is an assumption that all entities utilize a systematic approach to their current training program. We would guess that is not the case, since utilizing this methodology may generate a lot of paper work and is administered by those with a background in implementing a systematic approach to training. With the passage of this new standard, reducing the implementation time frame from 36 to 24 months will in many cases create additional burdens to some entities and others will need to make improvements to their programs to meet the new standard and measures. In either case, entities will have to either rely

Organization	Question 1:	Question 1 Comments:
		on in house development or vendors to meet the criteria. This may be a substantial change and may require project funding, which in of itself creates a timeline of anywhere between 1-3 years and a process of planning, budgeting, and implementation. Therefore, within the first two years planning (analyzing and designing) and budgeting would have to be completed, followed by development and implementation. We feel returning the training program effective date to 36 months after the first day of the first calendar quarter following regulatory approval allows responsible entities to develop quality training programs under the systematic approach required by the standard.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
Santee Cooper	No	Santee Cooper believes that 36 months is needed to implement a quality training program utilizing the systematic approach to training. Requirement 1 and Requirement 2 should both become effective 36 months after appropriate approvals.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada):		

Organization	Question 1:	Question 1 Comments:
• **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
Duke Energy	No	While 24 months is sufficient time to implement R1, implementing R2 will take longer because verifying System Operators' capabilities is dependent upon development of the task list and training program. 36 months should be allowed for implementation of R2.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule**		

Organization	Question 1:	Question 1 Comments:
• **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
E.ON U.S. LLC	No	E.ON U.S. believes that its training programs are sufficient to meet the requirements of the standard but is concerned that if NERC requires that parties undergo a formal systematic approach to training process that adequate time may not be available to complete the development, testing and administration of a training program. E.ON U.S. requests that NERC provide greater clarity as to whether a systematic approach to training process will be required in all instances and if so, better define what steps are required to implement this process. Without this guidance E.ON U.S. suggests that shortening the training period is not appropriate at this time.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		

Organization	Question 1:	Question 1 Comments:
With regards to your comment concerning clarity as to whether a systematic approach to training being required in all instances the answer is yes, the systematic approach to training process must be used for all training associated with this standard. In addition, the Reference Document attached to this standard provides information on the use and implementation of a systematic approach to training.		
PSEI	No	The plan should go back to 3 years. There are many entities that will essentially have to re-build there programs to meet the administrative burden of an auditable SAT. I also disagree with the statement in the standard that R3 is presently in effect. The language, and therefore interpretation, of R3 differs from what is in the current approved standard. The new R3 in this standard should not go into effect until the first calendar quarter following regulatory approval of the standard.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.** **The SPT SDT thanks you for your comment concerning the effective date for Requirement R3 and has modified the date. The effective date now reads "PER-002-1 Requirement R4 and PER-004-1 Requirement R2 are presently in effect and will be superseded by PER-005-1 Requirement R3 upon approval of this Standard".**		

Organization	Question 1:	Question 1 Comments:
ISO/RTO Council - Standards Review Committee	No	The IRC does not agree with the SDT's proposal, particularly as it relates to training simulation/simulators (for details see comments under Q3).
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. **Requirement 3.1 uses IROLs as a delineating criterion for those entities that must provide emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions and is not limiting the emergency operating training under simulation to only address IROL operating conditions. The requirement specifies the use of simulation technologies is required for Reliability Coordinators, Balancing Authorities and Transmission Operators that have operational authority or control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations. If an entity does not have authority or control over facilities with established IROLs or has not established operating guides or protection systems to mitigate IROL violations, then this requirement does not apply to the entity.**		
Ontario IESO	No	We have a comment on the use of training simulation/simulators (see comments under Q3) and are therefore not agreeing with that part of the implementation date.
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. **Requirement 3.1 uses IROLs as a delineating criterion for those entities that must provide emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions and is not limiting the emergency operating training under simulation to only address IROL operating conditions. The requirement specifies the use of simulation technologies is required for Reliability Coordinators, Balancing Authorities and Transmission Operators that have operational authority or control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations. If an entity does not have authority or control over facilities with established IROLs or has not established operating guides or protection systems to mitigate IROL violations, then this requirement does not apply to the entity.**		
Arizona Public Service Company	Yes and No	I can live with it, but I'm not sure if some smaller entities with training responsibilities being conducted by part time operators can. Three years would be better.
Response: Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical		

Organization	Question 1:	Question 1 Comments:
process (with the exception of Canada): • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
Hydro One Networks	Yes and No	The timelines of 2 months and 36 months are appropriate however the general wording of the Effective Date section of the Standard and the Implementation Plan should be modified. In principle, the effective date of standards must be the same for all jurisdictions in North America. It does not make sense that there is a period of time when a standard is effective only in some jurisdictions while not in others. This is particularly important in standards that have a clear reliability impact. In addition, it does not seem appropriate to have entities exposed to sanctions for non-compliance in some jurisdictions while not in others. We suggest: - Requirement 1 and Requirement 2 becomes effective 2 months after the first day of the first calendar quarter following the date the standard is approved by all applicable regulatory authorities. - "Requirement R3.1 becomes effective 36 months after the first day of the first calendar quarter following applicable the date the standard is approved by all applicable regulatory authorities."
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment. **While some standards do need to be implemented at the same time throughout an Interconnection such as standards that have requirements associated with frequency control, there is nothing in this standard that will impact real-time operations, and thus no**		

Organization	Question 1:	Question 1 Comments:
reliability-related reason to implement the standard at the same time in all jurisdictions.		
American Transmission Company	Yes	As the JTA is new; but the requirement to have a training program is not, it is reasonable to conduct and implement a JTA within a two year timeframe.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment.		
FirstEnergy	Yes	The 24-month implementation allows for sufficient time for industry to properly develop their training programs and to formulate the required evidence for compliance.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment.		
Manitoba Hydro	Yes	MHEB agrees with the revised dates.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment.		
Bonneville Power Administration	Yes	
NorthWestern Corporation	Yes	
Public Service Commission of South Carolina	Yes	
PPL Electric Utilities	Yes	
City Of Tallahassee (TAL)	Yes	
Entergy - System Planning & Operation (Generation)	Yes	
WECC Reliability Coordination Comment Working Group	Yes	
FRCC System Operator Subcommittee	Yes	
Wapa (Loveland, Co)	Yes	
Pepco Holdings, Inc. - Affiliates	Yes	
Orlando Utilities Commission	Yes	
Seattle City Light	Yes	
NPCC	Yes	
ISO New England Inc.	Yes	
CenterPoint Energy		
Transmission System		

Organization	Question 1:	Question 1 Comments:
Operations - Baltimore Gas & Electric		
Standards Interface Subcommittee/Compliance Elements Drafting Resource Pool		
SRP		

2. The SPT SDT revised R1 to provide clarity and eliminate the ambiguity concerning the training program to be established. R1 now reads: "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program." Do you agree that the revised language now clearly defines the training program to be developed? If not, please explain in the comment area.?

Summary Consideration:

Approximately 2/3 of the industry participants responding agreed the revised Requirement R1 provided greater and sufficient clarity. A few of those industry participants responding with a "no" vote either opposed using a systematic approach to training or felt the SPT SDT was trying to dictate a specific process. The SPT SDT explained that it was responding to FERC directives and that it was not trying to prescribe a certain methodology. The SPT SDT further explained that there were multiple variations of a systematic approach to training and that there were examples listed in the Reference Document associated with the Standard.

Some of the responders also cited concerns with developing a task list or that a task list would be different, some possibly small and some larger. The SPT SDT explained that task lists would vary from entity to entity and therefore would be impossible for a standard to define the tasks for every entity. The SPT SDT further explained that there were topics located within the Reference Document associated with this Standard that could serve as a guide for the development of an entities task list.

Organization	Question 2:	Question 2 Comments:
Entergy - System Planning & Operation (Generation)	No	The two sentences that make up R1 seem to convey a purpose/intent rather than an actual requirement. R1 adds nothing that is not already covered in the "sub-requirements" that are listed. There is no reason to state that a 'systematic approach to training' is required and then go on to state the specific requirements of that concept. Only the requirements are needed. It is suggested that R1 be integrated into the PURPOSE section of PER-005 as such: To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent to perform those tasks through a systematic approach to training. The Sub-requirements should be made as stand alone requirements in the standard.R1.1 - a reference document containing a possible list of reliability tasks may be useful for some entities, as long as it is not interpreted to be all encompassing or required to be required tasks.R1.1.1 - "annually" needs better definition. Is it January through December? Or is it within 12 months of the last performance?
Response: The SPT SDT feels that, based on prior industry comments received during earlier postings, there is a need to require the use of a systematic approach to training within the Standard. Also, there are multiple variations of a systematic approach to training. The sub-requirements simply list common elements that are in every systematic approach to training process. While the SAT process may be familiar to many entities, the comments received during the development of this standard indicate that many entities have little		

Organization	Question 2:	Question 2 Comments:
or no familiarity with the SAT process. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** **http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf** **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** **http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html** **(3) ADDIE – 1975, Florida State University** **http://www.nwlink.com/~donclark/history_isd/addie.html** **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** **http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf** **The Appendix A: Generic System Operator Task List was removed based on industry comments received from previous postings, therefore only BES company-specific reliability-related tasks are required to be considered when developing a task list. The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard details some topics that could be considered and included in a task list.** **The SPT SDT is specifying the term "annual" to mean a calendar year from January to December. The SPT SDT modified the Requirement to say "calendar year".**		
Ohio Valley Electric Corporation	No	The wording "systematic approach" may be clearly stated, but the words will not be uniformly understood or applied in the development of a training program. Similarly, the individual company interpretations of "reliability-related tasks" will not be uniformly understood or applied. The R1 wording should be, "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall establish a training program for its System Operators and shall implement the program."
Response: This standard was developed based on the Industry approved SAR and requires that a systematic approach to training process be applied to all system operator training for reliability-related tasks, either new or existing. The requirement to use a systematic approach to training is a directive from FERC Order 693. In addition, there are multiple variations of a systematic approach to training and this standard is not prescribing the use of any specific SAT methodology. Each entity may select its own SAT methodology as long as it includes the elements identified in sub-requirements R1.1 to R1.4. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard.		

Organization	Question 2:	Question 2 Comments:
(1) DOE-HDBK-1078-94, A Systematic Approach to Training http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910 http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html** **(3) ADDIE – 1975, Florida State University http://www.nwlink.com/~donclark/history_isd/addie.html** **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96 http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf** **Only BES company-specific reliability-related tasks should be considered when developing a task list. The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard details some topics that could be considered and included in a task list.**		
E.ON U.S. LLC	No	As outlined above, E.ON U.S. requests that NERC fully identify what steps are required to use a "systematic approach to training". As previously discussed, the use of the DOE process if required will require a substantial resource and time commitment but will not guarantee that the resulting training program is any better than the programs currently in place for training system operators. E.ON U.S. recommends that the standard be altered to allow entities to demonstrate that their current training programs and policies, while not necessarily developed through a defined systematic approach do meet the requirements of the standard.
Response: This standard requires that a systematic approach to training process be applied to all system operator training for reliability-related tasks, either new or existing. The requirement to use a systematic approach to training is a directive from FERC Order 693. In addition, there are multiple variations of a systematic approach to training and this standard is not prescribing the use of any specific SAT methodology. Each entity may select its own SAT methodology as long as it includes the elements identified in sub-requirements R1.1 to R1.4. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf** **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C.**		

Organization	Question 2:	Question 2 Comments:
20585 FSC 6910 **http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html** **(3) ADDIE – 1975, Florida State University** **http://www.nwlink.com/~donclark/history_isd/addie.html** **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** **http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf**		
ONtario IESO	No	The term "systematic approaching to training" needs to be defined. Interpretations currently vary widely across the industry.
Response: There are multiple variations of a systematic approach to training and this standard is not prescribing the use of any specific SAT methodology. Each entity may select its own SAT methodology as long as it includes the elements identified in sub-requirements R1.1 to R1.4. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** **http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf** **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** **http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html** **(3) ADDIE – 1975, Florida State University** **http://www.nwlink.com/~donclark/history_isd/addie.html** **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** **http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf**		
Duke Energy	No	R1 should state that each RC, BA and TO shall define and use a systematic approach to training. Since the systematic approach to training is not a NERC-defined term, an auditor may not agree with an entity's selected approach. Similarly, R1.1 should state that each RC, BA and TO shall define its list of BES company-specific reliability-related tasks performed by its System Operators. Also, the R1 High and Severe VSLs need to have the word "list" added back in.
Response: There are multiple variations of a systematic approach to training and this standard is not prescribing the use of any specific SAT methodology. Each entity may select its own SAT methodology as long as it includes the elements identified in sub-requirements R1.1 to R1.4. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard.		

Organization	Question 2:	Question 2 Comments:
(1) DOE-HDBK-1078-94, A Systematic Approach to Training http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910 http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html** **(3) ADDIE – 1975, Florida State University http://www.nwlink.com/~donclark/history_isd/addie.html** **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96 http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf** **The SPT SDT understands your concern about interpretation of standards by an auditor. However, this is outside the scope of the Standard Development Process and is addressed in the Compliance Monitoring and Enforcement Program.** **The SPT SDT thanks you for your comment concerning the wording of Sub-requirement R1.1 but feels that thee term "create" is more appropriate and provides for sufficient clarity.** **With regards to your comment concerning the VSL for R1, the SPT SDT agrees and has modified the VSL to include the word "list".**		
Southern Company Transmission	No	What about the training programs that are in place now? Are they grand fathered? The industry needs clear direction on existing training programs. We support the use of the Systematic Approach-To-training (SAT). However the proposed standard seems to infer that to be consistent with SAT an entity need only develop a "company-specific reliability-related task". The SAT process is more than merely developing a list of Tasks. (Analysis, Design, Develop, Implement, and Evaluate.) Additionally as written the proposed standard provides no industry guidance in determining what constitutes "…a company-specific reliability-related task". It is purely subjective. Further, developing this subjective list does nothing to enhance reliability. An entity can make this list as long or short as they see fit. This task list should, at minimum, fully support the function type definition contained in the NERC Statement of Compliance Registry Criteria (Revision 4.0) for the Company's Compliance Registry Certification.
Response: This standard requires that a systematic approach to training process be applied to all system operator training for reliability-related tasks, either new or existing. **In addition, the SPT SDT is not inferring that "to be consistent with SAT an entity need only to develop a company-specific reliability-related task list". The SPT is only identifying some of the common elements that are in every systematic approach to training. Also, as**		

Organization	Question 2:	Question 2 Comments:
stated previously in our response to comments dated August 15, 2007 only specific tasks that are considered critical to reliability should be considered when developing a task list. The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard details some topics that could be considered and included in a task list. **The NERC Functional Model and the Statement of Compliance Registry Criteria provide the current functional type definitions needed by NERC to fulfill its obligation as the Electric Reliability Organization to identify and register all entities that meet the criteria for inclusion in the compliance registry. An entity can utilize the NERC Functional Model and the Statement of Compliance Registry Criteria functional definitions to develop its list of BES company-specific reliability-related tasks. In addition, the NERC Rules of Procedure Section 500 specifies that Reliability Coordinators, Balancing Authorities and Transmission Operators included in the Compliance Registry must be certified to operate in those functional areas.**		
SERC Standards Review Group	No	This group feels that the requirement to "establish a training program" using the systematic approach to training (SAT) is still ambiguous with respect to existing training materials. Can these resources be retrofit into the SAT-developed program? Are existing materials grandfathered and therefore exempt from meeting requirement R1? The industry needs clear direction on how responsible entities can incorporate their existing materials into the established "training program" and still be compliant with requirement R1. Furthermore, the development of reliability-related system operator tasks is a crucial first step for the SAT process. It would be helpful to have a suggested (not prescriptive) list of generic tasks that training personnel could use as a starting point to create the list of BES company-specific reliability-related tasks required by R1.1. This group suggests that the PER-005 System Personnel Training Reference Document be augmented to include such a generic task list. We further suggest that Appendix A: Generic Task List of Draft 2 of PER-005 be used as the suggested list of operator tasks. By moving the task list out of the Standard and into the Reference Document, training personnel will have the flexibility to modify the tasks, or add/remove tasks to suit their specific system.
Response: This standard has been developed based on the Industry approved SAR and requires that a systematic approach to training process be applied to all system operator training for reliability-related tasks, either new or existing. **The Appendix A: Generic System Operator Task List was removed based on industry comments received from previous postings, therefore only BES company-specific reliability-related tasks should be considered when developing a task list. The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard details some topics that could be considered and included in a task list.**		
PowerSouth Energy Cooperative	No	Some direction on existing training programs and how they will fit into the requirement should be included in the standard. Also, the current wording leaves a lot of interpretation to an auditor in deciding what tasks are be appropriate to included in the task list.
Response: This standard requires that a systematic approach to training process be applied to all system operator training for		

Organization	Question 2:	Question 2 Comments:
reliability-related tasks, either new or existing. **The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard details some topics that could be considered and included in a task list. In addition, the SPT SDT understands your concern about interpretation of standards by an auditor. However, this is outside the scope of the Standard Development Process and is addressed in the Compliance Monitoring and Enforcement Program.**		
BCTC	No	"Company-specific reliability-related tasks" are not defined. These tasks may vary with different RROs and as related to the RRO's definition of the BES. Therefore, it is up to each RRO to provide clear guidance to its entities to establish these tasks and that will require additional time to develop. If the BES is not properly defined by the RRO, then it will be extremely difficult for an entity to determine if the BES company-specific reliability-related tasks in its training program meet this requirement. We are also concerned that unless there is a clear definition or examples of what "Company-specific reliability-related tasks" are then an audit team will define them as they see fit and this does not meet the spirit of removing ambiguity from the Standards.
Response: Only BES company-specific reliability-related tasks should be considered when developing a task list. The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard details some topics that could be considered and included in a task list. **The SPT SDT understands your concern about interpretation of standards by an auditor. However, this is outside the scope of the Standard Development Process and is addressed in the Compliance Monitoring and Enforcement Program.**		
Pacific Gas and Electric Company	No	This statement; "shall use a systematic approach to training to establish a training program" based on "for the BES company-specific reliability-related tasks performed by its System Operators" will be the challenge! This leaves open for interpretation by the auditors what that means for each entity and will therefore, create inconsistency throughout the industry. The compliance audits are already creating inconsistency within the industry and this standard will further add to that inconsistency. NERC Standards should clearly state the requirement(s) and measure(s), and not create more uncertainty.
Response: Only BES company-specific reliability-related tasks should be considered when developing a task list. The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard details some topics that could be considered and included in a task list. **The SPT SDT understands your concern about interpretation of standards by an auditor. However, this is outside the scope of the Standard Development Process and is addressed in the Compliance Monitoring and Enforcement Program.**		
PJM Interconnection	No	It is still unclear if this addresses only new programs. R1 ignores the fact that many RCs, BAs & TOs

Organization	Question 2:	Question 2 Comments:
		already have excellent training programs in place. Is R1 intended to cover existing work as well? These programs are effective, however, they may not have been built "using a systematic Approach to Training" (SAT). Even if they were built with a SAT, the documentation for this would need to be created. The timely completion of this is unlikely, given the new, abbreviated, implementation time (see 1 above).
Response: This standard requires that a systematic approach to training process be applied to all system operator training for reliability-related tasks, either new or existing. **The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada):** • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training were identified in the 2003 Black-out Report and FERC Order 693 to establish the criteria for system operator training.** **Also, this standard has been developed based on the Industry approved SAR.**		
WECC Operations Training Subcommittee	No	"Company-specific reliability-related tasks" are not defined and therefore it will be up to each region to provide this assistance. The WECC OTS believes the additional time needed for this definition from the regions needs to be provided for in the implementation phase. However, this definition will vary within the regions and some may have a broader definition, which will make it extremely difficult for an entity to

Organization	Question 2:	Question 2 Comments:
		determine if its training program meets this requirement.
Response: Only BES company-specific reliability-related tasks should be considered when developing a task list. The number of tasks identified by each entity will vary dependent upon the operating position, responsibility of the position and the specific system for which the list is being developed. The Reference Document associated with the Standard details some topics that could be considered and included in a task list. **Due to the lack of clear industry consensus, the SPT SDT supports a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada):** • **NERC filing of BOT approved standard with FERC** • **FERC staff review for development of NOPR** • **NOPR comment period** • **FERC staff review of NOPR comments** • **FERC issuing of final rule** • **Publish in Federal Register** • **24 months after the first day of the first calendar quarter following regulatory approval** **In addition, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.**		
PSEI	No	BES company-specific, reliability-related tasks is open to interpretation by auditors. What if an auditor thinks some task should be on my task list, but my evaluation based on difficulty, frequency, and importance concludes it does not? Am I automatically in violation? The current wording is so broad that essentially all tasks could be linked to it. Perhaps re-phrasing to "critical BES company-specific reliability-related tasks ..." or "BES company-specific reliability-related tasks determined to be critical ..." would help trainers with refining their task list to a more manageable level.
Response: The SPT SDT understands your concern about interpretation of standards by an auditor. However, this is outside the scope of the Standard Development Process and is addressed in the Compliance Monitoring and Enforcement Program.		

Organization	Question 2:	Question 2 Comments:
The term "critical" was in earlier versions of this Standard but was removed based on industry comments received from previous postings.		
Ameren	Yes and No	I don't think the addition of "and shall implement the program" is necessary as R.1.3 already does this.
Response: The SPT SDT acknowledges your comment but added the phrase "and shall implement the program" to provide clarity in support of comments received during previous postings.		
ISO/RTO Council - Standards Review Committee	Yes	The IRC agrees that any new training program should be created using a systematic approach to training. However, the SDT should make clear that this requirement is related only to new programs and will not be imposed retroactively on training modules created prior to this standard.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment. **This standard was developed based on the Industry approved SAR and requires that a systematic approach to training process be applied to all system operator training for reliability-related tasks, either new or existing. The requirement to use a systematic approach to training is a directive from FERC Order 693.**		
Santee Cooper	Yes	We recommend the Standard include as a reference document a suggested (not prescriptive) list of generic tasks that training personnel could use as a starting point to create the list of BES company-specific reliability-related tasks required by R1.1. It should be clear that the list is only SUGGESTED generic tasks so that if a company determines one of the tasks is not a reliability-related task performed by its System Operators that an audit team could not deem the company non-compliant if all tasks are not included.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment. **The Reference Document associated with the Standard details some topics that could be considered and included in a task list.** **The SPT SDT understands your concern about interpretation of standards by an auditor. However, this is outside the scope of the Standard Development Process and is addressed in the Compliance Monitoring and Enforcement Program.**		
Manitoba Hydro	Yes	MHEB agrees that the revised language makes it clear.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment.		
Bonneville Power Administration	Yes	
NorthWestern Corporation	Yes	
NPCC	Yes	
Seattle City Light	Yes	
Arizona Public Service Company	Yes	

Organization	Question 2:	Question 2 Comments:
Wapa (Loveland, Co)	Yes	
Pepco Holdings, Inc. - Affiliates	Yes	
Orlando Utilities Commission	Yes	
WECC Reliability Coordination Comment Working Group	Yes	
FRCC System Operator Subcommittee	Yes	
Hydro One Networks	Yes	
City Of Tallahassee (TAL)	Yes	
MRO NSRS	Yes	
AEP	Yes	
Great River Energy	Yes	
PPL Electric Utilities	Yes	
American Transmission Company	Yes	
Public Service Commission of South Carolina	Yes	
FirstEnergy	Yes	
ISO New England Inc.	Yes	
CenterPoint Energy		
Standards Interface Subcommittee/Compliance Elements Drafting Resource Pool		
Transmission System Operations - Baltimore Gas & Electric		
SRP		

3. The SPT SDT revised R3 and added R3.1 to provide clarity in the types of training that can be utilized and the entities that must use simulation/simulator training in their emergency operations training. Do you agree that this requirement now clearly describes the types of training that can be utilized as well as the entities that must provide simulation/simulator training in its emergency operations training? If not, please explain in the comment area.

Summary Consideration:

The majority of the industry participants responding disagreed with Requirement R3.1. Some of those in disagreement misunderstood the use of IROLs as defining the use of simulators while others still disagreed with mandating the use of simulators. The SPT SDT explained the standard utilizes IROLs as a way to define those entities that needed to use a simulator/simulation technology in their training methodology. The SPT SDT further explained that it was responding to a FERC directive to utilize simulator/simulation training for system operator training.

In addition, a few of the responders wanted the SPT SDT to define the minimum number of hours that an entity needed to train a system operator on simulators/simulation. The SPT SDT explained that the SPT SDT was trying to allow each responsible entity to have the flexibility to determine the amount of hours of each type of training needed for their individual system conditions.

Organization	Question 3:	Question 3 Comments:
NorthWestern Corporation	No	R3.1 specifies that the simulator training is required only for IROL situations. However, the corresponding measure (M3.1) does not stipulate the same. It is unclear if this requirement/measure applies only to IROLs or both IROLs and SOLs. Is this requirement not applicable in the Western Interconnection since there is an absence of IROLs in the West?
Response: Requirement 3.1 uses IROLs as a delineating criterion for those entities that must provide emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions and is not limiting the emergency operating training under simulation to only address IROL operating conditions. **The requirement specifies that the use of simulation technologies is required for Reliability Coordinators, Balancing Authorities and Transmission Operators that have operational authority or control over Facilities with established IROLs or has *established operating guides or protection systems to mitigate IROL violations*. If an entity does not have authority or control over facilities with established IROLs or has not established operating guides or protection systems to mitigate IROL violations, then this requirement does not apply to the entity.**		
City Of Tallahassee (TAL)	No	I disagree with tying the requirement to SOL/IROL remediation. I also disagree with having to have a simulator. While they are good tools, a generic simulator (that replicates the response of the BES) is not the cure-all for a training in system response (including restoration). A good table-top on an entities own

Organization	Question 3:	Question 3 Comments:
		system will provide better understanding of the operators own system and how to restore it. The cost-benefit analysis may not justify the expense of producing and maintaining a simulator for many small entities that are quite capable of producing quality training with a table-top. Cost needs to become a factor in what is mandated for the operation of the BES. Compliance is pushing the cost of doing business through the roof. Customers and their advocates are getting fed up with the increased costs they are paying for the same service. They do not see the additional support and tools needed to have an effective compliance program and prevent fines. Do not pass requirements that will be overly burdensome to small utilities to fix a perceived problem with poor training. We can have well trained operators without breaking the bank. The inclusion of mandatory simulators contradicts previous public responses from FERC. This requirement is beyond a minimum standard, it is a "best practice". Leave it out of the standard!
Response: Requirement 3.1 uses IROLs as a delineating criterion for those entities that must provide emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions and is not limiting the emergency operating training under simulation to only address IROL operating conditions. The requirement specifies that the use of simulation technologies is required for Reliability Coordinators, Balancing Authorities and Transmission Operators that have operational authority or control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations. If an entity does not have authority or control over facilities with established IROLs or has not established operating guides or protection systems to mitigate IROL violations, then this requirement does not apply to the entity. **The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation.** **With regards to your comment concerning "breaking the bank", it is beyond the scope of all standards to develop a standard based on costs. In the NERC Drafting Team Guidelines, Appendix C – FERC's Criteria for Approving Reliability Standards, it states "Should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect "best practices" without regard to implementation cost". The SPT SDT believes the standard as developed achieves the reliability goals and allows applicable entity the flexibility to comply using the most cost effective method available.**		
ISO/RTO Council - Standards Review Committee	No	Subrequirement 3.1 is overly prescriptive regarding how to accomplish training. The objective of this standard is to ensure the RC, TOP and BA develop and implement a training program for its system operators to deal with normal and emergency situations. Handling IROL violations is one of the tasks that an RC operator must be able to perform. How to achieve this training to meet the needed competency level should be left to the responsible entity. The NERC Operator Certification exercise is the vehicle to test the operators' knowledge of handling these situations, not the prescriptive tool for training. The following requirement 3.1 text referring to instructional applications in the current draft is

Organization	Question 3:	Question 3 Comments:
		excessively vague: "shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions." What does it mean to say "virtual technology, or other technology that replicates the operational behavior of the BES...." ? A clear language version of the intended text should be: "shall provide each System Operator with emergency operations training employing power flow results which replicate the operational behavior of the BES during normal and emergency conditions." If a simulator or virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions is required for RC, BA and TOP to facilitate system operator training, where justified, then it should be a requirement for organization certification, not for training program.
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. **Requirement 3.1 uses IROLs as a delineating criterion for those entities that must provide emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions and is not limiting the emergency operating training under simulation to only address IROL operating conditions.** **With regards to your comment concerning the competency level issue, the NERC Operator Certification and Organization Certification are outside the scope of the industry approved SAR used to develop this standard.** **The SPT SDT has considered your concern regarding "simulation technology or other technology that replicates the operational behavior of the BES during normal and emergency conditions" being unclear, however based on current industry comments the SPT SDT feels the present wording provides sufficient clarity to the requirement. The SPT SDT is trying to allow for the use of other technology, not just a simulator, to achieve the desired outcome.**		
ISO New England Inc.	No	Subrequirement 3.1 is overly prescriptive regarding how to accomplish training. The objective of this standard is to ensure the RC, TOP and BA develop and implement a training program for its system operators to deal with normal and emergency situations. What does it mean to say, "virtual technology, or other technology that replicates the operational behavior of the BES...." ? A clearer language version of the intended text would be: "shall provide each System Operator with emergency operations training employing power flow results which replicate the operational behavior of the BES during normal and emergency conditions."
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation.		

Organization	Question 3:	Question 3 Comments:
Requirement 3.1 uses IROLs as a delineating criterion for those entities that must provide emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions and is not limiting the emergency operating training under simulation to only address IROL operating conditions. **The SPT SDT has considered your concern regarding "simulation technology or other technology that replicates the operational behavior of the BES during normal and emergency conditions" being unclear, however based on current industry comments the SPT SDT feels the present wording provides sufficient clarity to the requirement.**		
NPCC	No	R3.1 is overly prescriptive on how to accomplish training. The objective of this standard is to ensure that the RC, TOP, and BA develop and implement a training program for its system operators to deal with normal and emergency situations. Handling IROL violations is just one of the tasks that an RC operator must be able to perform. How to achieve this training to meet the needed competency level should be left to the responsible entity. The NERC Operator Certification exercise is the vehicle to test the operators' knowledge of handling these situations, not the prescriptive tool for training. If a simulator, virtual, or other technology that replicates the operational behavior of the bulk power system during normal and emergency conditions is required for RC, TOP, and BA to facilitate system operator training, then where justified, it should be a requirement for organization certification, not for a training program.
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. Requirement 3.1 uses IROLs as a delineating criterion for those entities that must provide emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions and is not limiting the emergency operating training under simulation to only address IROL operating conditions. **With regards to your comment concerning the competency level issue, NERC Operator Certification and Organization Certification are outside the scope of the industry approved SAR used to develop this standard.**		
SERC Standards Review Group	No	The consensus of this group is that the use of simulators for certain entities should not be mandated and that requirement R3.1 should be removed from the standard. Requirement R3 should be revised to allow every responsible entity the flexibility to meet its emergency operations training requirement using any or all of the following types of training: drills, exercises, training classes, or hands-on training using simulation. If Requirement 3.1 does remain in the standard, this group feels that entities mandated to use simulator training should be limited to Reliability Coordinators that have established IROLs within their coordinating footprint. In addition, the initial phrase in R3, "At least every 12 months" needs further clarification. We understand and appreciate the reason for changing the requirement for 32 hours of emergency training from every calendar year to every 12 months. This change was intended to permit

Organization	Question 3:	Question 3 Comments:
		an operator hired late in year to obtain his/her 32 required hours over a full 12 month period instead of just a month or two. However, this wording does not fully reflect this flexibility. The Drafting Team is requested to add some wording that clearly states that the 12-month period for this required 32 hours of training can be determined by the entity on a case-by-case basis, depending on an operator's specific circumstances.
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. **The SPT SDT has considered your concern regarding the term "12 month period" not fully defining a specific period, however based on previous and current industry comments the SPT SDT feels the present wording provides sufficient clarity to the requirement.**		
SRP	No	The Interconnection Reliability Operating Limit (IROL) should not be used to establish the applicability of this requirement, since the term itself is not well understood within the industry. Based on the obligations of the drafting team to clearly identify the applicability of the standard, it would be necessary for the drafting team to list all RCs, BAs and TOPs who have operational authority or control over Facilities with established IROLs.
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. The SPT SDT believes that the use of the phrase "established IROLs or has established operating guides or protection systems to mitigate IROL violations" appropriately represent the impact of entities on the reliability of the BES. **The SPT SDT has considered your comment concerning the applicability obligation and feels the applicability is based on the industry approved SAR.**		
Ontario IESO	No	Subrequirement 3.1 is overly prescriptive on how to accomplish training. The objective of this standard is to ensure the RC, TOP and BA develop and implement a training program for its system operators to deal with normal and emergency situations. Handling IROL violations is one of the tasks that an RC operator must be able to perform. How to achieve this training to meet the needed competency level should be left to the responsible entity. The NERC Operator Certification exercise is the vehicle to test the operators' knowledge of handling these situations, not the prescriptive tool for training. If a simulator or virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions is required for RC, BA and TOP to facilitate system operator training, where justified, then it should be a requirement for organization certification, not for training program. Further, in order to be a measurable requirement, the functionality and use of a simulator would need to be specified.
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order		

Organization	Question 3:	Question 3 Comments:
693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. Requirement 3.1 uses IROLs as a delineating criterion for those entities that must provide emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions and is not limiting the emergency operating training under simulation to only address IROL operating conditions. **With regards to your comment concerning the competency level issue, NERC Operator Certification and Organization Certification are outside the scope of the industry approved SAR used to develop this standard.**		
AEP	No	R3.1 - We disagree with the requirement to utilize a simulator for annual emergency operations training. Use of a simulator for training should be an option (not a requirement) for all entities. It should not just be optional for those entities without established IROLs. Also, discriminating in the requirement to have a simulator based on having an established IROL or guides/procedures to mitigate IROL violations, could cause a political view by an entity to avoid claiming an IROL to in turn avoid purchasing a simulator.
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. The SPT SDT believes that the use of the phrase "established IROLs or has established operating guides or protection systems to mitigate IROL violations" appropriately represent the impact of entities on the reliability of the BES. **With regards to your comment concerning an entity trying to avoid purchasing a simulator, it is beyond the scope of all standards to develop a standard based on costs. In the NERC Drafting Team Guidelines, Appendix C – FERC's Criteria for Approving Reliability Standards, it states "Should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect "best practices" without regard to implementation cost". The SPT SDT believes the standard as developed achieves the reliability goals and allows applicable entity the flexibility to comply using the most cost effective method available.**		
Santee Cooper	No	In R3.1 the SDT has tried to define what size entity is required to provide simulation training. Santee Cooper recommends removing R3.1 and revising R3 to read "to its organization that reflects emergency operations topics (which includes system restoration) using drills, exercises, training classes, or hands on training using simulations or other training required to maintain qualified personnel." This will provide flexibility for training within the companies and meets FERC's requirement of the use of simulators. The "at least every 12 months" wording in R3 needs to have additional wording added to allow for case by case basis. This change was intended to permit an operator hired late in year to obtain his/her 32 required hours over a full 12 month period instead of just a month or two. However, this wording does not fully reflect this flexibility.
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities		

Organization	Question 3:	Question 3 Comments:
that have operational control over a significant portion of load and generation. **The SPT SDT has considered your concern regarding the term "12 month period" not fully defining a specific period, however based on previous and current industry comments the SPT SDT feels the present wording provides sufficient clarity to the requirement.**		
Duke Energy	No	As written, R3.1 applies only to entities that have IROLs or operating guides or protection systems to mitigate IROL violations. Paragraph 1393 of Order 693 states that simulators should be used by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. The Standards Drafting Team should resolve this disconnect. R3.1 also uses undefined terms (simulation technology, virtual technology) that should be further clarified to reduce ambiguity. We also note and agree that while 36 months is allowed for implementation of R3.1, R3 is in effect now for emergency operations training.
Response: The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. The SPT SDT believes that the use of the phrase "established IROLs or has established operating guides or protection systems to mitigate IROL violations" appropriately represents the impact of entities on the reliability of the BES. **The SPT SDT has considered your concern regarding "simulation technology or other technology that replicates the operational behavior of the BES during normal and emergency conditions" being unclear, however based on current industry comments the SPT SDT feels the present wording provides sufficient clarity to the requirement.**		
Ohio Valley Electric Corporation	No	Emergency operations training should not be limited to the tasks "applicable to its organization." Many emergency operations topics are related to concepts and not tasks performed by System Operators. The task list developed in R1 could be used to identify some emergency operations training topics but will not cover all the topics that should qualify as emergency operations training.R3.1 is too specific/detailed to be included as a requirement in the standard. Place the details of R3.1 in a reference document or guide.PER-002 R4 currently defines emergency operations training clearly and is well understood and successfully implemented by the entities required to provide this training. PER-005 R3 should be revised to the wording in PER-002 R4.
Response: The SPT SDT believes that the standard as written provides for the flexibility you have described by allowing "other training required to maintain qualified personnel". **The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation.**		
Southern Company Transmission	No	We disagree with mandating the use of a training simulator. R3. should be revised to allow an entity the flexibility of using any or all of the following training resources to meet its emergency operations

Organization	Question 3:	Question 3 Comments:
		requirement; drills, exercises, training classes or hands on training using simulation. This requirement is onerous. Less affluent entities that operate the BES, and also fall under NERC's purview will be hard pressed to afford a "simulator" that truly imitates their system. The purchase, model maintenance and operation of a simulator can be a financial burden for a smaller entity with an IROL.
Response: Requirement R3 states "using drills, exercises or other training required to maintain qualified personnel" and as such does allow an entity the flexibility of choosing training resources. The standard further simply delineates criterion for those entities that must provide emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. **The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation.** **With regards to your comment concerning creating a financial burden on an entity, it is beyond the scope of all standards to develop a standard based on costs. In the NERC Drafting Team Guidelines, Appendix C – FERC's Criteria for Approving Reliability Standards, it states "Should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect "best practices" without regard to implementation cost". The SPT SDT believes the standard as developed achieves the reliability goals and allows applicable entity the flexibility to comply using the most cost effective method.**		
PowerSouth Energy Cooperative	No	Section of 3.1 is poorly worded. It is unclear what "simulation technology or other technology that replicates operational behavior" implies. Flexibility in the training including hands-on exercises, table top drills, classes should be allowed.
Response: The SPT SDT has considered your concern regarding "simulation technology or other technology that replicates the operational behavior" being unclear, however based on current industry comments the SPT SDT feels the present wording provides sufficient clarity to the requirement. **Requirement R3 states "using drills, exercises or other training required to maintain qualified personnel" and as such does allow an entity the flexibility of choosing training resources. The standard further simply delineates criterion for those entities that must provide emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.** **The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation.**		
Arizona Public Service Company	No	I suggest the following revisions:

Organization	Question 3:	Question 3 Comments:
		R3 At least every 12 months each Reliability Coordinator, Balancing Authority, and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization, including system restoration using drills, exercises, or other training activities. R3.1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training based on the operational behavior of the BES during normal and emergency conditions. These changes maintain the intent of the requirement while allowing for flexibility in training methods.
Response: The SPT SDT thanks you for your clarifying comment. However, the SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation.		
PJM Interconnection	No	As written, there is no minimum amount of simulator training needed to satisfy R3 (eg, using a "technology that replicates the operational behavior of the BES" for five minutes would meet the requirement). NERC Certification programs currently mandate that RC, BA, & TO system operators have 30 hours of simulator training over their three year certification period. A duplication here (with no minimum requirement) seems pointlessly redundant.
Response: The SPT SDT is not mandating a minimum number of hours that an entity must train on a simulator. The SPT SDT is trying to allow the Reliability Coordinator, Balancing Authority or Transmission Operator to determine what level of simulation training is required for their specific situation. **In the case of the NERC Certification Program mandating System Operators to have 30 hours of simulator training over the 3 year certification period, the NERC Certification Program is not a part of this standard. The Certification Program requires "training using a simulator" not "training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions". These are two different requirements, therefore no duplication exists. However, it would appear that if an entity could utilize one training method to complete two separate requirements, it would be in the best interest of the entity.**		
CenterPoint Energy	No	No. CenterPoint Energy believes that additional clarity is needed. R3.1 can be interpreted to mean that for the entities identified simulation technology must be used for (all) 32 hours of emergency operations training. This goes far beyond the directive from FERC in Order 693, paragraphs 1390-1391. CenterPoint Energy believes from the Consideration of Comments on the 3rd Draft? the intent is for the entities identified in R3.1 to include simulation technology within the at least 32 hours? of emergency operations training provided to each System Operator, which is consistent with the directive from FERC in Order 693, paragraphs 1390-1391.In R3.1, CenterPoint Energy proposes to replace "using" with

Organization	Question 3:	Question 3 Comments:
		"including the use of" to clarify the intent as discussed above. R3.1 would read as follows: R3.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training including the use of simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.
Response: The SPT SDT is not mandating a minimum number of hours that an entity must train on a simulator. The SPT SDT is trying to allow the Reliability Coordinator, Balancing Authority or Transmission Operator to determine what level of simulation training is required for their specific situation. **In the case of the NERC Certification Program mandating System Operators to have 30 hours of simulator training over the 3 year certification period, the NERC Certification Program is not a part of this standard. The Certification Program requires "training using a simulator" not "training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions". These are two different requirements, therefore no duplication exists. However, it would appear that if an entity could utilize one training method to complete two separate requirements, it would be in the best interest of the entity.**		
BCTC	No	Using simulation to deliver training which may be developed out of R1.4 requires a guideline or a clear number of hours for an entity to determine how many hours should be required to meet the standard. Or, if an entity has no task identified that requires simulation according to the definition in the Standard, then the Standard should reflect completion of your annual NERC certification requirements for certification renewal, i.e. a minimum 10 hours of simulation. We would support 10 hours of simulation training.
Response: The SPT SDT is not mandating a minimum number of hours that an entity must train on a simulator. The SPT SDT is trying to allow the Reliability Coordinator, Balancing Authority or Transmission Operator to determine what level of simulation training is required for their specific situation. **This standard also does not define the use of simulation to deliver the training for the BES company-specific reliability-related tasks.** **The NERC Certification Program is outside the scope of this standard.**		
WECC Operations Training Subcommittee	No	The WECC OTS believes using simulation to identify training which may be developed out of R1.4 and believes a guideline is needed to determine how many hours should be required in this standard. Or, if no task is identified, then the standard should reflect completion of your annual NERC certification requirements for certification renewal, i.e. a minimum of 10 hours of simulation.
Response: The SPT SDT is not mandating a minimum number of hours that an entity must train on a simulator. The SPT SDT is trying to allow the Reliability Coordinator, Balancing Authority or Transmission Operator to determine what level of simulation training is required for their specific situation.		

Organization	Question 3:	Question 3 Comments:
This standard also does not define the use of simulation to deliver the training for the BES company-specific reliability-related tasks. **The NERC Certification Program is outside the scope of this standard.**		
Ameren	No	What is "other training required to maintain qualified personnel"? Why not just say "using drills, exercises, or other methods of training".
Response: The SPT SDT is not trying to define all types of emergency operations training to conduct, but is instead allowing the individual Reliability Coordinator, Balancing Authority or Transmission Operator to determine what type of emergency operations training is needed for their particular system. The phrase "other training required to maintain qualified personnel" was added based on previous industry comments received.		
E.ON U.S. LLC	No	The standard does not define what is considered a simulation/simulator training platform. E.ON U.S. does use internal and vendor provided emergency system simulator training. In most programs the emergency conditions embedded in the training programs while not specific to E.ON U.S. operations represent conditions that can reasonably be expected to surface during times of system emergencies.. Therefore, these simulation/simulator training provide valuable framework from which to develop specific operator protocols to follow when experiencing system emergencies. Once again E.ON U.S. requests that NERC either better define what it considers a simulation/simulator training or allow each entity to demonstrate that training currently provided is sufficient to meet the standards.
Response: The standard does not preclude the use of external training simulation not specific to the entity. The standard states that if an entity meets the criteria in Requirement 3.1 that emergency operations training must use simulation technology such as a simulator, virtual technology, or other technology that *replicates the operational behavior of the BES* during normal and emergency conditions. **With regards to your comment concerning demonstrating that current training provided meets the standard, it is the responsibility of the Reliability Coordinator, Balancing Authority or Transmission Operator to demonstrate compliance with the standard.**		
PSEI	No	Who this applies to is still very vague and open to interpretation by auditors. Performing a Google search on "WECC IROL" will produce a "philosophy" document that states "The WECC does not have any IROLs under normal operation, but an SOL condition, depending upon the operating conditions, could become an IROL condition, which would be determined post-analysis." I am afraid of entities honestly believing that this standard does not apply to them, but suddenly finding themselves fined because an auditor believes everyone has IROLs or SOLs that could become IROLs. Perhaps the standard could ask the RRO to further define who this applies to. Of course, nothing would prevent the region from putting out an overly burdensome definition.
Response: The requirement specifies the use of simulation technologies is required for Reliability Coordinators, Balancing Authorities and Transmission Operators that have operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations. If an entity does not have authority or control over facilities with established IROLs or has not established operating guides or protection systems to mitigate IROL violations, then this requirement		

Organization	Question 3:	Question 3 Comments:
does not apply to the entity.		
MRO NSRS	No	The SPT SDT has done a great job on R3.1 but we wonder about R3. R3 mentions other system specific emergency training available to maintain qualified personnel is there a way that the SDT can clarify what type of training is acceptable? Is attending any NERC workshop acceptable? Perhaps, the SDT could suggest some examples and place them in the PER-005 System Personnel Training Reference Document.
Response: The SPT SDT has a list of emergency operations training topics that could be included in the training in the Reference Document associated with this Standard.		
Great River Energy	No	GRE recommends replacing the existing phrase "other training required to maintain qualified personnel" with the following text "or other system specific emergency training available to maintain qualified personnel"
Response: The SPT SDT has considered your comment regarding replacing the phrase "other training required to maintain qualified personnel", however the SPT SDT believes the current wording provides sufficient clarity to the requirement.		
Pacific Gas and Electric Company	Yes and No	We recognize that utilizing a simulator for training can greatly enhance the operator's awareness of system conditions and can enable them to respond in a training environment to simulated events which will not lead to an actual cascading event or collapse of the BES. In many cases of an operator's career, this would constitute approximately 10% or less of their actual work time and what they need to know and how to respond to an emergency situation. This additional requirement for some smaller entities that operate within the BES may create financial burdens with the required purchase, model maintenance and operation of a simulator that imitates their system. We recommend R3. be revised to allow an entity the flexibility of using any or all of the following training resources to meet its emergency operations requirement; drills, exercises, training classes or hands on training using simulation.
Response: With regards to your comment concerning creating a financial burden on an entity, it is beyond the scope of all standards to develop a standard based on costs. In the NERC Drafting Team Guidelines, Appendix C – FERC's Criteria for Approving Reliability Standards, it states "Should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect "best practices" without regard to implementation cost". The SPT SDT believes the standard as developed achieves the reliability goals and allows the applicable entity the flexibility to comply using the most cost effective method. **The SPT SDT believes that the requirement as written provides for the flexibility as described in your comment.**		
FirstEnergy	Yes and No	We agree that the addition of R3.1 more clearly specifies when simulators, or simulation technology, is required. However, the duration of required simulator training is not specified in R3.1. We would not want an auditor to think that you would need 32 hours of simulator training since using simulation technology would only be a part of all the training tasks. In R3.1, we suggest the SDT specify that a duration of at least 1 hour of simulation training shall be part of the 32 hours of emergency operations training.
Response: The SPT SDT is not mandating a minimum number of hours that an entity must train on a simulator. The SPT SDT is trying		

Organization	Question 3:	Question 3 Comments:
to allow the Reliability Coordinator, Balancing Authority or Transmission Operator to determine what level of simulation training is required for their specific situation. **The SPT SDT understands your concern about interpretation of standards by an auditor. However, this is outside the scope of the Standard Development Process and is addressed in the Compliance Monitoring and Enforcement Program.**		
WECC Reliability Coordination Comment Working Group	Yes and No	It does a better job of clarifying what entities must use simulation, but it does not specify what number of EOP hours must be simulation only. We suggest that the number of hours be determined by the entity itself utilizing the requirements in PER 005 R1.4.
Response: The SPT SDT is not mandating a minimum number of hours that an entity must train on a simulator. The SPT SDT is trying to allow the Reliability Coordinator, Balancing Authority or Transmission Operator to determine what level of simulation training is required for their specific situation.		
FRCC System Operator Subcommittee		FRCC disagrees with tying the requirement to SOL/IROL remediation. FRCC also disagrees with having to have a simulator. While they are good tools, a generic simulator (that replicates the response of the BES) is not the cure-all for training in system response (including restoration). A good table-top on an entity's own system will provide better understanding of the operators own system and how to restore it. Many small entities are quite capable of producing quality training with a table-top. Do not pass requirements that will be overly burdensome to small utilities to fix a perceived problem in the value of training on simulators as compared to table-top exercises. We can have well trained operators without breaking the bank. The inclusion of mandatory simulators contradicts previous public responses from FERC. This requirement is beyond a minimum standard, it is a "best practice". Leave it out of the standard!
Response: Requirement 3.1 uses IROLs as a delineating criterion for those entities that must provide emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions and is not limiting the emergency operating training under simulation to only address IROL operating conditions. The requirement specifies that the use of simulation technologies is required for Reliability Coordinators, Balancing Authorities and Transmission Operators that have operational authority or control over Facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations. If an entity does not have authority or control over facilities with established IROLs or has not established operating guides or protection systems to mitigate IROL violations, then this requirement does not apply to the entity. **The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation.** **With regards to your comment concerning "breaking the bank", it is beyond the scope of all standards to develop a standard based on costs. In the NERC Drafting Team Guidelines, Appendix C – FERC's Criteria for Approving Reliability Standards, it states "Should**		

Organization	Question 3:	Question 3 Comments:
achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect "best practices" without regard to implementation cost". The SPT SDT believes the standard as developed achieves the reliability goals and allows the applicable entity the flexibility to comply using the most cost effective method.		
American Transmission Company	Yes	Suggestion on the 12 months: The SDT had the following statement to ATC's previous comment: "THE SPT SDT did not intend to define the 12 month period for providing emergency operations training. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from annually to every 12 months to allow for the situations of new hires late in the calendar year."ATC understands the SPT SDT position on the 12 month period, but believes that the standard should contain this clarity. ATC suggests that the Requirement 3 contain a footnote describing the SPT SDT meaning of the 12-months.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment. **The SPT SDT has considered your concern regarding the term "12 month period" not fully defining a specific period, however based on previous and current industry comments the SPT SDT feels the present wording provides sufficient clarity to the requirement and therefore feels a footnote is not needed.**		
Entergy - System Planning & Operation (Generation)	Yes	However the number of hours required is not clear; is there a minimum number of hours of the 32 that must meet this simulation technology requirement?.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment. **The SPT SDT is not mandating a minimum number of hours that an entity must train on a simulator. The SPT SDT is trying to allow the Reliability Coordinator, Balancing Authority or Transmission Operator to determine what level of simulation training is required for their specific situation.**		
Orlando Utilities Commission	Yes	Placing examples directly within the body of text leads to ambiguity. In this case it would appear that drills are only applicable to system restoration. I would recommend always placing examples of items within parentheses, producing:... emergency operations topics (including system restoration) using drills, exercises ...As far as using simulation, I think that the requirement is fairly clear however I hate to bring up that the requirement does not specify that the clock-time of the simulations must use actual clock time and not artificially slowed down events.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment. **The SPT SDT is specifying that system restoration must be a part of the 32 hours of emergency operations training. The requirement does not limit training to only system restoration. The standard allows for each entity to develop training specific to their needs.**		
Manitoba Hydro	Yes	MHEB agrees that the revision more clearly describes the types of training and which entities must provide simulation/simulator training.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment.		

Organization	Question 3:	Question 3 Comments:
Public Service Commission of South Carolina	Yes	
Seattle City Light	Yes	
Bonneville Power Administration	Yes	
Wapa (Loveland, Co)	Yes	
Pepco Holdings, Inc. - Affiliates	Yes	
Hydro One Networks	Yes	
PPL Electric Utilities	Yes	
Transmission System Operations - Baltimore Gas & Electric		
Standards Interface Subcommittee/Compliance Elements Drafting Resource Pool		

4. The SPT SDT modified the Data Retention section of this Standard to provide clarity: "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance, for three years or since its last compliance audit, whichever time frame is the greatest, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation." Do you agree that this Standard now clearly defines the period for which compliance records must be kept? If not, please explain in the comment area

Summary Consideration:

The overwhelming majority of the industry participants responding agreed the revisions to the Data Retention section provided improved and sufficient clarity. One responder misunderstood the use of a measure. The SPT SDT explained that measures were proxies to assess required performance or outcomes.

Organization	Question 4:	Question 4 Comments:
MRO NSRS	No	The SPT SDT has done a great job in revising the Data Retention sections of PER-005-1 Draft 4 and PER-004-1 but we were wondering, each standard states that ?the Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.? (This statement usually appears at the end of the section.) We would like to see this statement removed from the standard since the Compliance Enforcement Authority is not a user, owner, or operator of the Bulk Power System. This statement should be made in the Compliance Monitoring and Enformcement Programs.
Response: As you have stated this is part of all standards. Your comment is outside scope of this standard and will be forwarded on for consideration in the future.		
WECC Reliability Coordination Comment Working Group	Yes and No	Yes the measure is clear but we believe the measure should be reflected in the requrement. The measure expects more information be retained than the requirement identifies.
Response: Measures are used to assess performance and outcomes for the purpose of determining compliance with the requirements. Measures are proxies to assess required performance or outcomes.		
Bonneville Power Administration	Yes	
Manitoba Hydro	Yes	MHEB agrees that the revision clearly states the record retention period.
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment.		
Ohio Valley Electric Corporation	Yes	Less is often better!
Response: The SPT SDT acknowledges your affirmative response and thanks you for your clarifying comment.		
NorthWestern Corporation	Yes	

Organization	Question 4:	Question 4 Comments:
Ameren	Yes	
NPCC	Yes	
PJM Interconnection	Yes	
Seattle City Light	Yes	
Southern Company Transmission	Yes	
Arizona Public Service Company	Yes	
Wapa (Loveland, Co)	Yes	
Pepco Holdings, Inc. - Affiliates	Yes	
Orlando Utilities Commission	Yes	
E.ON U.S. LLC	Yes	
SERC Standards Review Group	Yes	
PowerSouth Energy Cooperative	Yes	
PSEI	Yes	
FRCC System Operator Subcommittee	Yes	
Hydro One Networks	Yes	
Entergy - System Planning & Operation (Generation)	Yes	
City Of Tallahassee (TAL)	Yes	
BCTC	Yes	
ISO/RTO Council - Standards Review Committee	Yes	
WECC Operations Training Subcommittee	Yes	
Ontario IESO	Yes	
AEP	Yes	
Great River Energy	Yes	

Organization	Question 4:	Question 4 Comments:
PPL Electric Utilities	Yes	
Pacific Gas and Electric Company	Yes	
Santee Cooper	Yes	
American Transmission Company	Yes	
Public Service Commission of South Carolina	Yes	
Duke Energy	Yes	
FirstEnergy	Yes	
ISO New England Inc.	Yes	
CenterPoint Energy		
Transmission System Operations - Baltimore Gas & Electric		
Standards Interface Subcommittee/Compliance Elements Drafting Resource Pool		
SRP		

5. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Summary Consideration:

The primary focus of the comments received in the "Other Comments" section centered on comments already addressed in Questions 1, 2 and 3. These items included the use of a systematic approach to training, the number of hours of simulator training and interpretation of this standard by an auditor. The SPT SDT restated its response provided from the previous questions.

The only other prevailing comment concerned the VSLs and how they were set. The SPT SDT explained that the VSLs are determined in accordance with the Violation Severity Levels Development Guidelines Criteria. The SPT SDT further explained that the VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs and that this document was a product developed jointly by the stakeholder drafting teams and Subject Matter Experts, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel.

Organization	Question 5 Comments:

Organization	Question 5 Comments:
PJM Interconnection	SAT, while a valid training process is not without its shortcomings, or the only acceptable method to develop training. This is especially true in the area of just-in-time training. Mandating a training development process is not conducive to a reliability standard, and would be difficult to monitor for compliance. The standard as written mandates a "How-to" approach which is not within scope of a reliability standard. This standard would divert the already scarce training resources away from training operators to the administrative work of documenting every step of the training process to ensure compliance with the standard. It could have the unintended consequence of actually reducing the number of training hours the operators receive. Ultimately, training effectiveness will be measured by compliance with existing reliability standards. That being said, the objective is to ensure qualified system operators. PJM supports the parallel implementation of hourly training requirements for continuing education as well as initial training. NERC has a Continuing Education Program that ensures high quality training, and sets forth a structure using Continuing Education Hours (CEHs) for "NERC Certified Operators". While NERC has continually stated that the CEH program is separate from the standards, little justification has been provided for this separation. Thus, redundant and possibly conflicting training requirements are being proposed. NERC has stated, in it's 2008 budget, that the CEH program ""promotes excellence" and "advances improved performance". Utilizing the CEH approach, PJM would support the increase of the training time required under R3 to at least 100 CEHs annually with category breakdown (i.e. simulation, standards, EOP) as specified in the NERC Certification program. PJM also proposes that for new operators, R2 be replaced with a fixed training hour requirement that is broken down into specific areas (such as job assignments, NERC Standards, tools, internal procedures, etc.). This initial training requirement would be analogous to the CEH program for existing operators, but focused on specific categories related to the initial requirements of the job. PJM would suggest that the SDT post this idea for industry comments.
Response: **This standard is being developed based on the Industry Approved SAR.** **Concerning your comments regarding the Continuing Education Program, this is outside the scope of the industry approved SAR.**	
Southern Company Transmission	We are concerned with the current draft of PER-005. It is likely that auditors will consistently disagree with the composition of an entity's reliability related task list. Ambiguous subjective requirements have no place in a mandatory reliability standard. A better approach would be to capture in this standard the continuing education requirements and categories by type of NERC certification.
Response: The SPT SDT understands your concern about interpretation of standards by an auditor. However, this is outside the scope of the Standard Development Process and is addressed in the Compliance Monitoring and Enforcement Program. **Concerning your comments regarding the Continuing Education Program, this is outside the scope of the industry approved SAR.**	

Organization	Question 5 Comments:
Arizona Public Service Company	Simplify step R1.1.1 as follows: Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall review its list of BES company-specific reliability-related tasks performed by its System Operators at least annually to ensure the list's adequacy.
Response: The SPT SDT has considered your suggested modification, however based on previous and current industry comments the SPT SDT feels the present wording provides sufficient clarity to the requirement.	
Pepco Holdings, Inc. - Affiliates	For the Violation Risk Factors for R1, High and Severe, all the references to -when developing a new or modifying an existing training program- should be removed. This language is no longer a part of the Requirements. Additionally, the High and Severe VSLs should reflect that R1.1, R1.2 and R1.3 should all be at the same severity level because all are equally important to meeting the standard.
Response: The SPT SDT has considered your suggested modification to the VSLs and is in agreement with your comment. The references to "developing a new or modifying an existing program" have been removed.	
E.ON U.S. LLC	E .ON U.S. generally supports the intent of the PER-005 standard, but it does not believe that following the Systematic Approach to Training. While E.ON U.S. acknowledges that formal operator training is essential for the safe and reliable operation of the electricity system, it is concerned that any incremental reliability gains derived from implementing the SAT process may not be worth the substantial cost for companies and their customers. - E.ON U.S. believes that utilities should have the ability to outline and tailor their training programs to reflect the unique characteristics of their systems and the unique circumstances that each operator is likely to confront in the operation of the system. Many parties already have developed and will continue to conduct extensive and highly effective training of their operations staff. Absent some demonstration of substantial incremental benefit, a standard requiring utilities to start from scratch with a formal SAT process will be unjustifiably burdensome, distracting, and require a complete reallocation of already limited resources, all to the potential detriment of continued safe and reliable operations. - E.ON U.S., as well as many other parties, currently trains their system operators through many processes. For E.ON U.S., all new hires are required to complete a structured training program that covers all areas of operations during normal and emergency system conditions. This training is in the form of structured classroom and/or NERC certified vendor training plus direct instruction from supervisory operators through the use of actual control room equipment and, where appropriate, simulators. No operator is allowed to independently work until the supervisory personnel has certified that training has been completed and the employee has satisfactorily demonstrated proficiency in all identified tasks through the successful completion of a rigorous testing program. - All existing operators that have been certified as being proficient at a journeyman level will receive annual refresher instruction and training, both through vendor and simulator training programs to, again, guarantee that operators have a mastery of all tasks required of them. - E.ON U.S. believes, therefore, that its current training program, while not identical with the DOE SAT

Organization	Question 5 Comments:
	process, achieves the same goals and objectives of having well-trained and proficient system operators in place, and in maintaining a rigorous training regimen to keep those skills at the highest attainable levels. Such a program provides systematic, company specific training programs and processes that meet the requirements of PER-005. Companies should be able to demonstrate that their training programs are equal or superior to programs that are identified in the SAT process. – Identification of critical tasks and training necessary to ensure that system operators possess the skills necessary to complete the task is utility specific. Employing a cookie cutter approach as identified by the SAT process seems to largely ignore utility differences. Existing training programs should not be overhauled by use of the SAT unless these programs prove to be deficient.
Response: This standard is based on the industry approved SAR and requires that a systematic approach to training process be applied to all system operator training for reliability-related tasks, either new or existing. The requirement to use a systematic approach to training is a directive from FERC Order 693. In addition, there are multiple variations of a systematic approach to training and this standard is not prescribing the use of any specific SAT methodology. Each entity may select its own SAT methodology as long as it includes the elements identified in sub-requirements R1.1 to R1.4. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** **http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf** **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** **http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html** **(3) ADDIE – 1975, Florida State University** **http://www.nwlink.com/~donclark/history_isd/addie.html** **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** **http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf** **With regards to your comment concerning "the substantial cost", it is beyond the scope of all standards to develop a standard based on costs. In the NERC Drafting Team Guidelines, Appendix C – FERC's Criteria for Approving Reliability Standards, it states "Should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect "best practices" without regard to implementation cost". The SPT SDT believes the standard as developed achieves the reliability goals and allows the applicable entity the flexibility to comply using the most cost effective method.**	
PSEI	I believe there needs to be further clarification of a couple of points in R3. The change to "at least every 12

Organization	Question 5 Comments:
	months" is a compliance nightmare. Does this mean each operator shall have 32 hours for any consecutive 12 month period? Could this mean every calendar year? Does this mean there is a compliance violation if an operator completes a course 12 months and 1 day from the last completion date? Some regional exercises are held annually for operators to complete the 32-hr emergency training. If this training is held a week later the next year, are the entities in violation? I know I will get the response that this is outside the scope of the drafting team, but entities need to know how they are expected to be compliant to the standard as it is written. The use of the term annually in this application differs from updating a document annually. Does it mean within 365 days? Also, the addition of company-specific adds another dynamic to the existing requirement. This now adds another layer of paperwork to the entities that are using vendors to meet their requirements. If an entity is strapped for bodies to create their own training courses, why burden them with linking tasks to vendor courses. This again opens the door to an auditor's opinion of what training is "company-specific" and what is adequate proof. It should remain worded as the current standard.
Response: The SPT SDT has considered your concern regarding the term "12 month period" not fully defining a specific period, however based on previous and current industry comments the SPT SDT feels the present wording provides sufficient clarity to the requirement. **To be in compliance the training must be conducted within 12 months.** **The SPT SDT understands your concern about interpretation of standards by an auditor. However, this is outside the scope of the Standard Development Process and is addressed in the Compliance Monitoring and Enforcement Program.** **This standard is being developed based on the Industry Approved SAR.**	
FRCC System Operator Subcommittee	FRCC does not agree that any Violation Severity Level should be higher than "Moderate" regarding system personnel training.
Response: The VSLs are determined in accordance with the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs and that this document was a product developed jointly by the stakeholder drafting teams and Subject Matter Experts, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel.	
Hydro One Networks	A measure for R1.1.1 is missing. We recommend adding the words "? and R1.1.1" to the end of Measure M1.1 and replace the word "revision" with "update and/or review". Considered adding the following to the High VSL for R3: "? OR The responsible entity provided less than 32 hours of emergency training to its System Operators (R3). Can we assume standard PER-004-2 Reliability Coordination - Staffing will eventually be updated and completed within Project 2006-01's timeframe?
Response: The SPT SDT thanks you for your comment concerning Measure M1.1 and will modify the measure.	

Organization	Question 5 Comments:
Regarding the concern that the requirement of providing 32 hours of emergency operations training not being addressed in the VSLs - the VSLs, as presently written, address the issue of providing less than the required number of hours of emergency training. In the instance of an entity only providing 30 hours of emergency training to all of its system operators, that entity would have provided 32 hours of emergency operations training to 0% of the system operators and therefore would be deemed non-compliant. **The Implementation Plan references any requirement in PER-004-2 that is affected by this standard. Any requirement in PER-004-2 that is not referenced in the Implementation Plan is outside the scope of the industry approved SAR.**	
Entergy - System Planning & Operation (Generation)	The second sentence of the PURPOSE section needs to be deleted as it is more of a statement which adds no value to the purpose. Suggest revising the PURPOSE to include concepts of R1 (see response to question 1 above). R2 - How would this apply to System Operators who are currently "qualified" by their entities to fulfill the on-duty position of a System Operator? i.e. - is there some sort of "grandfather" status? R2 - recommend modifying the phrase "at least one time" to "prior to independently staffing a real-time System Operator role", if the intent is to have the individual demonstrate the ability prior to being allowed to staff the on-duty System Operator position. R2 - is there any consideration to "proficiency" of a System Operator who has performed this task once? If an operator demonstrated the ability once 5 years ago, is it still ok? R2.1 - the length of time to verify System Operators abilities on new or modified tasks should not be longer that 3 months. Ideally, the System Operator would be trained prior to assuming the next watch. R3 - why 12 months instead of annually? Is there a difference? Is this intentional? R3 - the phrase "?required to maintain qualified personnel." should be deleted. "Qualified personnel" is not adequately defined or described and should not be used. M1.4 - seems to address on-going evaluations rather than a formal annual evaluation, unless a collective annual review of the items specified in M1.4 is the intent. M3 - what constitutes "training records"? Is the same as what is specified in M1.3? If so, then state as such. VSLs need to be reevaluated such that SEVERE would indicate a complete lack of a documented program. The scoring method used to rate several VSLs could be "shifted to the left" such that they fall into the Lower, Moderate, and High, instead of completely not using the Lower rating.PER-004-2R2 - consider strengthening

Organization	Question 5 Comments:
	the language of this requirement or deleting all together. The terms "particular attention" and "best available" are subjective. Regarding formatting when deleting requirements, is it proper to just shift everything up to fill in the deleted requirement or should it be annotated as "deleted" and the so that the remaining requirements still retain their original requirement number? For example, the proposed R2 was formerly R5. Changing the requirement number will create a logistical/tracking problem for many entities.
Response: The Purpose statement in the standard is from the industry approved SAR. **This standard does not allow for "grandfathering" of System Operators.** **With regards to your comment concerning Requirement R2, the individual would be in compliance with this standard. It should also be noted that it is up to the individual entity to determine how the standard is to be implemented within its own organization.** **The SPT SDT believes that reducing the six month re-verification window of Requirement 2.1 to a 30 day window would be too burdensome on an entity due to the shift schedules associated with a System Operators work environment.** **The SPT SDT did not intend to define the 12 month period for providing emergency operations training. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from "annually" to "every 12 months" to allow for the situation of new hires late in the calendar year.** **The phrase "other training required to maintain qualified personnel" was added based on previous industry comments received. This phrase is also from the current PER-002 which was approved by the industry, NERC and FERC.** **The standard requires that at least one time during the year a review of the training program will be completed. However, the standard does not preclude "on-going" review to occur. In addition, it is the responsibility of the individual Reliability Coordinator, Balancing Authority or Transmission Operator to provide evidence of compliance with the standard.** **The VSLs are determined in accordance with the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs and that this document was a product developed jointly by the stakeholder drafting teams and Subject Matter Experts, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel.** **With regards to your comments concerning PER-004-2 and the requirement numbering method are outside the scope of this standard.**	
Ohio Valley Electric Corporation	The Violation Severity Levels are all skewed towards the severe level. The Violation Severity levels should be skewed towards the lower level. With the lack of assessment or evaluation of the effectiveness of existing

Organization	Question 5 Comments:
	training programs required by PER-002 R3, why work to create a new training standard? With the lack of such an assessment, the work to develop a new training standard is not a judicious use of limited resources in order to strengthen the reliability of the bulk electric system. The NERC operation certification program already determines that operators possess the minimal requirements to reliably operate the bulk electric system. Why should a training program duplicate the certification process? Currently there is ample incentive to have operators trained on company-specific tasks. An operator who is not capable of performing company specific task will not remain an operator at that company.
Response: The VSLs are determined in accordance with the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs and that this document was a product developed jointly by the stakeholder drafting teams and Subject Matter Experts, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel. **The SPT SDT is responding to directives included in FERC Order 693 as directed by the NERC Standards Committee. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation.** **Concerning your comments regarding the Continuing Education Program, this is outside the scope of the industry approved SAR.**	
City Of Tallahassee (TAL)	No Violation Severity Level should be higher than "Moderate" regarding system personnel training!
Response: The VSLs are determined in accordance with the Violation Severity Levels Development Guidelines Criteria. The VSL Guidelines Criteria document is a tool used in developing Violation Severity Levels to provide a more consistent application when determining VSLs and that this document was a product developed jointly by the stakeholder drafting teams and Subject Matter Experts, along with the NERC Standards and Compliance Monitoring and Enforcement Program personnel.	
BCTC	The Standard drafting team stated in the implementation plan for R3 that it is presently in effect and will remain in effect, but the SDT added two significant changes to this requirement. This results in additional work by the entities to meet these changes and additional time to implement these changes. We recommend a 12 month implementation plan for the new R3 to allow entities to become compliant.? "5. Proposed Effective Date for Regulatory Approvals:" "5.2. Requirement R3 is presently in effect and will remain in effect upon approval of this Standard."? R3. At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. [Risk Factor: Medium] [Time Horizon: Long-term Planning]
Response: The SPT SDT thanks you for your comment concerning the effective date for Requirement R3 and has modified the effective date.	

Organization	Question 5 Comments:
The SPT SDT has considered your recommendation for a 12 month implementation period for Requirement R3, however the SPT SDT does not feel that the changes made to Requirement R3 have modified the intent of the existing requirement PER-002 Requirement R4 and PER-004 Requirement R2 and therefore does not believe the change is necessary.	
WECC Operations Training Subcommittee	The WECC OTS questions the following statement and believes R3 has not been approved in PER-005 and would like the implementation date effective 12 months after the first day of the first calendar quarter following applicable regulatory approval:? "5. Proposed Effective Date for Regulatory Approvals:" "5.2. Requirement R3 is presently in effect and will remain in effect upon approval of this Standard."? R3. At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. [Risk Factor: Medium] [Time Horizon: Long-term Planning]
Response: The SPT SDT thanks you for your comment concerning the effective date for Requirement R3 and has modified the effective date. **The SPT SDT has considered your recommendation for a 12 month implementation period for Requirement R3, however the SPT SDT does not feel that the changes made to Requirement R3 have modified the intent of the existing requirement PER-002 Requirement R4 and PER-004 Requirement R2 and therefore does not believe the change is necessary.**	
MRO NSRS	R 1.4 should be deleted it is covered by R 1.1.1, by adding "and shall implement the changes identified" to R 1.1.1 will give clear direction to registered entities. M 1.2 It will be impossible to provide all training support material for off site audits. Training programs may consist of computers, energy management system, facilities (generation plants, back up control centers, etc.) these can not be "boxed up" and supplied to an off site audit. We would like to see a footnote or note that recognizes that certain training items, such as EMS systems, are excluded. M 1.3 places required items as measures that are not in R 1.3. Requirements need to match the Measurements, exactly. M 1.4 places required items as measures that are not in R 1.4. Requirements need to match the Measurements, exactly. Under Data retention, 1.4.2 and 1.4.3 need to state that they have been removed instead of deleting the statement. Is it possible to say “Not Applicable” under section 1.2 (“Compliance Monitoring Period and Reset”) of the standard PER-005-1; this standard has this phrase.

Organization	Question 5 Comments:
	On page 26 of 73, the NERC Drafting Team Guidelines dated July 1, 2007 states that the compliance monitoring period is when the performance or outcome of a requirement is measured. Is it true that this standard's performance is not measured? The MRO doesn't think the Compliance Enforcement Authority is going to want to have its hands tied for three years until they can assess whether the entity is on track to meeting the requirements listed in the standard. The use of the term "customer" is a little out there. In the PER-005 System Personnel Training Reference Document, the reference #1: Determining Task Performance Requirement lists a question "What response from the customer must be accomplished?" Please define what a customer is.
Response: The SPT SDT disagrees with your comment concerning Requirement R1.1.1 and Requirement R1.4. Requirement R1.1.1 addresses changes in tasks while Requirement R1.4 addresses changes to the program. **The applicability of the standard is to the Reliability Coordinator, Balancing Authority or Transmission Operator, because of this, off-site audits will not be conducted. The standard does not require the entity to send out its evidence – the measures all use the phrase, "shall have available for inspection."** **With regards to your comment concerning Measures M1.3 and M1.4, measures are used to assess performance and outcomes for the purpose of determining compliance with the requirements. Measures are proxies to assess required performance or outcomes.** **The SPT SDT has considered your suggested modification to the Data Retention section of the standard, however based on previous and current industry comments and the lack of clear industry consensus, the SPT SDT feels that no change is necessary.** **The SPT SDT disagrees with your comment concerning the Compliance Enforcement Authority having its hands tied for three years. The standard allows for compliance monitoring through compliance audits, self certifications, spot checking, compliance violation investigations, self-reporting and complaints.** **The SPT SDT has provided information in the Reference Document that an entity may use in development of their training program. However, this information does not contain requirements and is provided only as a guideline.**	
Great River Energy	R 1.4 should be deleted it is covered by R 1.1.1, by adding "and shall implement the changes identified" to R 1.1.1 will give clear direction to registered entities. M 1.4 should be moved to M1.1 with the recommended deletion of R1.4 above. GRE recommends that the percentages referenced under R2 and R3 in the VSLs be replaced with specific quantities of items missed.
Response: The SPT SDT disagrees with your comment concerning Requirement R1.1.1 and Requirement R1.4. Requirement R1.1.1 addresses changes in tasks while Requirement R1.4 addresses changes to the program. **The SPT SDT has considered your comment concerning the VSLs. However, based on previous industry comments and the lack of clear industry consensus the SPT SDT does not feel that a modification is necessary. In addition, the use of specific quantities**	

Organization	Question 5 Comments:
instead of percentages is not practical considering differences in the number of company-specific reliability-related tasks and the number of system operators within each organization.	
Transmission System Operations - Baltimore Gas & Electric	The "Systematic Approach to Training" training should be offered as soon as possible. 24 months to complete a training program is a very aggressive schedule, so there is a need to start these activities in the near term.
Response: Upon NERC BOT approval of this standard, the SPT SDT will coordinate with NERC to schedule the training referenced in the Implementation Plan.	
Pacific Gas and Electric Company	Under "5. Proposed Effective Date for Regulatory Approvals:" "5.2. Requirement R3 is presently in effect and will remain in effect upon approval of this Standard." Since PER-005 has not been approved, R3 "At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel.", has not been approved. This is a change in the language from PER-002 R4 "For personnel identified in Requirement R2, each Transmission Operator and Balancing Authority shall provide its operating personnel at least five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel." We recommend the implementation date effective 12 months after the first day of the first calendar quarter following applicable regulatory approval"
Response: The SPT SDT thanks you for your comment concerning the effective date for Requirement R3 and has modified the effective date. **The SPT SDT has considered your recommendation for a 12 month implementation period for Requirement R3, however the SPT SDT does not feel that the changes made to Requirement R3 have modified the intent of the existing requirement PER-002 Requirement R4 and PER-004 Requirement R2 and therefore does not believe the change is necessary.**	
American Transmission Company	In R3, ATC suggests to move "At least every 12 months" to between "training" and "applicable". We feel that it changes the meaning of the sentence to more accurately reflect that each operator is required to have the required training within a 12 month window. ATC continues disagrees with the SPT SDT VSL's for Requirement 2 and 3. (Please see our comments during the last comment period.) Requirement 2 and 3: The VSLs continue to be based on pass/fail concept and do not represent the extent to which an entity did not comply with the requirement. Requirement 2 should include a component that represents the number of task(s) not completed. Requirement 3 should include a component that represents the number of emergency hours that not completed. PER-004-2 Proposed Effective Date: ATC believes that there is an error in the proposed effective date section based on our review of the red-line version of PER-004-2. The proposed effective date states that requirement 5 is being deleted but it seems that requirement 5 is being re-numbered as requirement 2. This inconsistency should be corrected.

Organization	Question 5 Comments:
Response: The SPT SDT thanks you for your comment regarding the re-wording of Requirement R3. However, based on previous industry comments and the lack of clear industry consensus the SPT SDT does not feel that a modification is necessary. **The SPT SDT thanks you for your comment concerning PER-004-1 Requirement R5 and will make the necessary correction.** **The SPT SDT has considered your comment concerning the VSLs. However, based on previous industry comments and the lack of clear industry consensus the SPT SDT does not feel that a modification is necessary. In addition, it would not appear to be practical considering differences in the number of company-specific reliability-related tasks and the number of system operators within each organization.** **Regarding the concern that the requirement of providing 32 hours of emergency operations training not being addressed in the VSLs - the VSLs, as presently written, address the issue of providing less than the required number of hours of emergency training. In the instance of an entity only providing 30 hours of emergency training to all of its system operators, that entity would have provided 32 hours of emergency operations training to 0% of the system operators and therefore would be deemed non-compliant.**	
Public Service Commission of South Carolina	The PSCSC suggests that the concept of "Systematic Approach to Training", used in PER-005-1, be defined in the standard or in the Glossary pertaining to all standards.
Response: There are multiple variations of a systematic approach to training and this standard is not prescribing the use of any specific SAT methodology. Each entity may select its own SAT methodology as long as it includes the elements identified in sub-requirements R1.1 to R1.4. The following are reference documents that can be used in developing a systematic approach to training. These documents are also listed in the Reference Document for this Standard. **(1) DOE-HDBK-1078-94, A Systematic Approach to Training** **http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf** **(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910** **http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html** **(3) ADDIE – 1975, Florida State University** **http://www.nwlink.com/~donclark/history_isd/addie.html** **(4) DOE Standard - Table-Top Needs Analysis DOE-HDBK-1103-96** **http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf**	
FirstEnergy	FE has the following additional comments:1. With regard to R1.1.1, the task list would not need to be updated if no new or modified tasks were identified.

Organization	Question 5 Comments:
	Therefore, the subrequirement could be slightly reworded as follows: "R1.1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall update its list of BES company-specific reliability-related tasks performed by its System Operators at least annually when new or modified tasks for inclusion in training have been identified." Also, the Measures were written so that they align with the Requirements and their respective subrequirements. However, subrequirement R1.1.1 seems to be missing a specific measure that requires proof that the training program task list was updated annually if new or modified tasks were identified per R1.1. The SDT should consider adding a new measure M1.1.1 for R1.1.1.2. Since R3.1 is only applicable for entities that operate with IROLs, the measure for R3 should be consistently worded. We suggest changing M3.1 as follows: "Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall have available for inspection training records that provide evidence that each System Operator received emergency operations training using simulation technology, as specified in R3.1."3. The reference document is a good guide for entities to use to reference industry recognized SAT processes as well as helping to determine their company-specific reliability-related operator tasks. However, this document may not be readily available to industry once the standard is enforceable since the standard does not provide a direct link to this reference material. Standards should be "all inclusive" and provide all the information needed. The SDT should consider adding a "Part F" to the standard (as allowed by NERC standard drafting guidelines) that provides a link to this reference material. This information should be transparent to industry when reviewing the standard for compliance and the SDT's work in preparing the reference document will be put to good use.
Response: The SPT SDT has considered your comment concerning Requirement R1.1.1. However, based on previous industry comments and the lack of clear industry consensus the SPT SDT does not feel that a modification is necessary. **Measure M1.1 has been modified to correct the oversight.** **With respect to your comment concerning Requirement R3.1, the requirement specifies the use of simulation technologies is required for Reliability Coordinators, Balancing Authorities and Transmission Operators that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations. If an entity does not have authority or control over facilities with established IROL's or has not established operating guides or protection systems to mitigate IROL violations, then this requirement does not apply to the entity.** **The SPT SDT thanks your for your comment concerning a link to the Reference Document and will work with NERC to provide access to reference material once the standard has been approved.**	

<table>
<tr><th>Organization</th><th>Question 5 Comments:</th></tr>
<tr><td>Standards Interface Subcommittee/Compliance Elements Drafting Resource Pool</td><td>
<table>
<tr><td>Standard – R1</td><td>PER-005-1</td></tr>
<tr><td colspan="2">Requirement (including sub-requirements)</td></tr>
<tr><td colspan="2">R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator <u>shall use a systematic approach</u> to training to establish a training program for the <u>BES company-specific reliability-related tasks</u> performed by its System Operators and <u>shall implement the program.</u>
[Risk Factor: Medium] [Time Horizon: Long-term Planning]

R1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall create a <u>list of BES company-specific reliability-related tasks</u> performed by its System Operators.

R1.1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator s<u>hall update its list</u> of BES company-specific reliability-related tasks performed by its System Operators <u>at least annually</u> to identify new or modified tasks for inclusion in training.

R1.2. Each Reliability Coordinator, Balancing Authority and Transmission Operator <u>shall design and develop learning objectives and training materials based on the task list</u> created in R1.1.

R1.3. Each Reliability Coordinator, Balancing Authority and Transmission Operator <u>shall deliver the training</u> established in R1.2.

R1.4. Each Reliability Coordinator, Balancing Authority and Transmission Operator <u>shall conduct an annual evaluation</u> of the training program established in R1, to <u>identify</u> any needed changes to the training program <u>and</u> shall <u>implement the changes</u> identified</td></tr>
<tr><td colspan="2">Proposed Measure</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Organization</th><th>Question 5 Comments:</th></tr>
<tr><td></td><td>
M1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence of using a systematic approach to training to establish and implement a training program, as specified in R1.

M1.1 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its company-specific reliability-related task list, with the date of the last revision, as specified in R1.1.

M1.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and training materials, as specified in R1.2.

M1.3 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection System Operator training records showing the names of the people trained, the title of the training delivered and the dates of delivery to show that it delivered the training, as specified in R1.3.

M1.4 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence (such as instructor observations, trainee feedback, supervisor feedback, course evaluations, learning assessments, or internal audit results) that it performed an annual training program evaluation, as specified in R1.4.
<table>
<tr><td>Attributes of the requirement</td><td>Binary</td><td></td></tr>
<tr><td></td><td>Timing</td><td>X</td></tr>
<tr><td></td><td>Omission</td><td>X</td></tr>
<tr><td></td><td>Communication</td><td></td></tr>
<tr><td></td><td>Quality</td><td></td></tr>
<tr><td></td><td>Other</td><td></td></tr>
</table>
</td></tr>
</table>

Organization	Question 5 Comments:
	General comment - Some of the requirements listed in this requirement (R1.1.1 & R1.4) include a timing element "annually" – the CEDRP suggest that more definition be associated with the annual requirements. Annual requirements appear to accept "anytime during two consecutive calendar years" which can result in the task being performed during December of one year followed by the task being performed in January of the next year (which we suspect would not meet the SDT intent).
	SDT Proposed Lower VSL
	None
	CEDRP Proposed VSL
	SDT Proposed Moderate VSL
	The responsible entity failed to provide evidence that it updated its company-specific reliability-related tasks to identify new or modified tasks on an annual basis (R1.1.1) OR The responsible entity failed to provide evidence of evaluating its training program to identify needed changes to its training program(s).(R1.4)
	CEDRP Proposed VSL

Organization	Question 5 Comments:
	The entity did create a list of reliability tasks – but did the list was incomplete or was not company specific (R1.1) *OR* *The entity performed an update of the BES company specific reliability tasks, but the update did not occur within the timing criteria specified in the requirement (R1.1.1)* *OR* *The entity conducted an evaluation of its training program, but the evaluation did not occur within the timing criteria specified in the requirement (R1.4)* *OR* *The entity conducted an annual evaluation as required in requirement 1.4, but failed to identify needed changes (R1.4)* *OR* *The entity conducted an annual evaluation as required in requirement 1.4, identified needed changes, but failed to implement changes (R1.4)*
	SDT Proposed High VSL
	The responsible entity failed to design and develop learning objectives and training materials based on the BES company specific reliability related tasks (when developing a new or modifying an existing training program). (R1.2)
	CEDRP Proposed VSL

Organization	Question 5 Comments:	
	The entity implemented/uses a systematic approach to training, but one or more elements of the systematic approach are not included in the program (R1) *OR* **The entity failed to perform a annual update of BES company specific reliability tasks (R1.1.1)** **OR** *The responsible entity failed to design and develop learning objectives based on the BES company specific reliability related tasks (when developing a new or modifying an existing training program). (R1.2)* *OR* *The entity designed and created learning objectives but did not create associated training material (R1.2)* *OR* *The entity delivered training but training delivered did not include all learning objectives/training material as stated in requirement 1.2 (R1.3)* *OR* *The entity did not conduct an evaluation as stated in requirement 1.4 (R1.4)*	
	SDT Proposed Severe VSL	

Organization	Question 5 Comments:
	When developing a new or modifying an existing training program, the responsible entity failed to prepare a company-specific reliability-related tasks (R1.1) OR When developing a new or modifying an existing training program the responsible entity failed to deliver training based on the BES company specific reliability related tasks. (R1.3)
	CEDRP Proposed VSL
	The entity does not use a systematic approach to training (R1) *OR* *When developing a new or modifying an existing training program, the responsible entity failed to prepare a company-specific reliability-related tasks (R1.1)* *OR* *When developing a new or modifying an existing training program the responsible entity failed to deliver training based on the BES company specific reliability related tasks. (R1.3)*
	FERC Guidance for VSLs (Analysis based on CEDRP Proposed Changes)
	1. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned?
	No
	2. Is the VSL assignment a binary requirement?
	No
	Is it truly a "binary" requirement?

Organization	Question 5 Comments:
	N/A
	If yes, is the VSL assignment consistent with other binary requirement assignments?
	N/A
	Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised?
	The CEDRP suggests that the SDT review or further define "annual" as it applies to this set of requirements.
	3. Does the VSL redefine or undermine the stated requirement?
	No
	4. Is the VSL based on a single violation of the requirement (not multiple violations)?
	Yes
	Standard – R2 / ***PER-005-1***
	Requirement (including sub-requirements)
	R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator **shall verify each** of its System Operator's **capabilities to perform** each assigned task identified in R1.1 at least one time. *[Risk Factor: High] [Time Horizon: Long-term Planning]* **R2.1.** Within **six months of a modification** of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Operator **shall verify each** of its System Operator's capabilities to **perform the new or modified tasks**.
	Proposed Measure

<table>
<tr><th>Organization</th><th>Question 5 Comments:</th></tr>
<tr><td></td><td>
<table>
<tr><td colspan="3">M2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence to show that it verified that each of its System Operators is capable of performing each assigned task identified in R1.1, as specified in R2. This evidence can be documents such as training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments.</td></tr>
<tr><td rowspan="6">Attributes of the requirement</td><td>Binary</td><td></td></tr>
<tr><td>Timing</td><td>X</td></tr>
<tr><td>Omission</td><td>X</td></tr>
<tr><td>Communication</td><td></td></tr>
<tr><td>Quality</td><td></td></tr>
<tr><td>Other</td><td></td></tr>
<tr><td colspan="3">SDT Proposed Lower VSL</td></tr>
<tr><td colspan="3">None</td></tr>
<tr><td colspan="3">CEDRP Proposed VSL</td></tr>
<tr><td colspan="3">SDT Proposed Moderate VSL</td></tr>
<tr><td colspan="3">The responsible entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)</td></tr>
<tr><td>CEDRP Proposed VSL</td><td colspan="2"></td></tr>
</table>
</td></tr>
</table>

Organization	Question 5 Comments:
	Entity verified capability of all operators to perform new or modified tasks, but the verification did not occur within the timing criteria specified in the requirement (R2.1)
	SDT Proposed High VSL
	The responsible entity verified at least 70% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2) OR The responsible entity failed to verify its system operator's capabilities to perform each new or modified task within six months of making a modification to its BES company specific reliability related tasks. (R2.1)
	CEDRP Proposed VSL
	Entity verified capability of operators, but did not verify capability of all operators (R2) *OR* *Entity verified the capability of all operators, but the verification was incomplete (based on list tasks identified in 1.1(R2)* *OR* *Entity verified capability of operators* for new or modified tasks*, but did not verify capability of all operators (R2.1)*
	SDT Proposed Severe VSL
	The responsible entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)

Organization	Question 5 Comments:
	CEDRP Proposed VSL
	Entity failed to verify capability of any operators (R2) **OR** *Entity failed to verify operators capability for new or modified tasks (R2.1)*
	FERC Guidance for VSLs (Analysis based on CEDRP Proposed Changes)
	1. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned?
	No
	2. Is the VSL assignment a binary requirement?
	No
	Is it truly a "binary" requirement?
	N/A
	If yes, is the VSL assignment consistent with other binary requirement assignments?
	N/A
	Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised?
	Yes
	3. Does the VSL redefine or undermine the stated requirement?
	No
	4. Is the VSL based on a single violation of the requirement (not multiple violations)?

Organization	Question 5 Comments:

Yes

Standard – R3	*PER-005-1*

Requirement (including sub-requirements)

R3. At **least every 12 months** each Reliability Coordinator, Balancing Authority and Transmission Operator shall **provide each of its System Operators** with **at least 32 hours** of emergency operations training **applicable to its organization** that reflects emergency operations topics, which **includes system restoration using drills, exercises or other training** required to maintain qualified personnel. *[Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R3.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational **authority or control** over **Facilities with established IROLs** or has established operating guides or protection systems to mitigate IROL violations **shall provide each** System Operator with emergency operations **training using simulation technology** such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

Proposed Measure

M3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator has obtained 32 hours of emergency operations training, as specified in R3.

M3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator received emergency operations training using simulation technology, as specified in R3.1.

Attributes of the requirement		
	Binary	
	Timing	X

Organization	Question 5 Comments:

Omission	X
Communication	
Quality	X
Other	

SDT Proposed Lower VSL

None

CEDRP Proposed VSL

SDT Proposed Moderate VSL

The responsible entity provided at least 32 hours of emergency operations training to at least 90% but less than 100% of their System Operators. (R3)

CEDRP Proposed VSL	

The entity provided 32 hours of training, but the training did not occur within the timing criteria specified in the requirement. (R3)

SDT Proposed High VSL

The responsible entity provided at least 32 hours of emergency operations training to at least 70% but less than 90% of its System Operators. (R3)

CEDRP Proposed VSL

Organization	Question 5 Comments:
	The entity did deliver emergency operations training, but did not provide 32 hours of emergency operations training.(R3) *OR* *The entity provided 32 hours of training within the timing criteria as specified in the requirement, but not all operators were trained. (R3)*
	SDT Proposed Severe VSL
	The responsible entity provided 32 hours of emergency operations training to less than 70% of its System Operators (R3) OR The responsible entity did not include simulation technology replicating the operational behavior of the BES in its emergency operations training. (R3.1)
	CEDRP Proposed VSL
	The entity did not provide training(R3) *OR* **The entity that has authority/control of IROLs did not provide training (R3.1)** *OR* **The entity that has authority/control of IROLs provided training, but the training did not include simulation technology that replicates behavior of the BES during normal and emergency conditions. (R3.1)**

Organization	Question 5 Comments:
	FERC Guidance for VSLs (Analysis based on CEDRP Proposed Changes)
	5. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned?
	No
	6. Is the VSL assignment a binary requirement?
	No
	Is it truly a "binary" requirement?
	N/A
	If yes, is the VSL assignment consistent with other binary requirement assignments?
	N/A
	Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised?
	Yes
	7. Does the VSL redefine or undermine the stated requirement?
	No
	8. Is the VSL based on a single violation of the requirement (not multiple violations)?
	Yes
	Additional Compliance Elements
	Compliance Enforcement Authority

Organization	Question 5 Comments:
	For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO shall serve as the Compliance Enforcement Authority. For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.
	Compliance Monitoring Period and Reset Time Frame
	N/A
	Compliance Monitoring and Enforcement Processes:
	Compliance Audits Self-Certifications Spot Checking Compliance Violation Investigations Self-Reporting Complaints
	Data Retention

Organization	Question 5 Comments:
	Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance for three years or since its last compliance audit, whichever time frame is the greatest, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation. If a Reliability Coordinator, Balancing Authority or Transmission Operator is found noncompliant, it shall keep information related to the non-compliance until found compliant. The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.
	Additional Compliance Information
	None
	CAE Resource Pool Comments
	None
Response: The SPT SDT differentiates between the terms "annual" and "12 months". The SPT SDT is specifying the term "annual" to mean a calendar year from January to December. The SPT SDT has modified the Requirement to say "calendar year". With regards to the term "12 months", the SPT SDT did not intend to define the 12 month period. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from "annually" to "every 12 months" to allow for the situation of new hires late in the calendar year. **The SPT SDT has considered your comments concerning the VSLs and does not find any substantial improvements or clarity in your proposal versus the VSLs included in PER-005-1 Draft 4 and therefore does not feel that a change is warranted. In addition, the industry comments received do not substantiate the need for changes to the VSLs of the magnitude you are proposing, however minor clarifications were made based on industry comments.**	
PPL Electric Utilities	Shouldn't 5.3 read "Subrequirement R3.1 becomes effective..." rather than "Requirement R3.1 becomes effective..."
Response: The SPT SDT thanks you for your comment and will modify the effective date to reflect your suggestion.	
Orlando Utilities Commission	I greatly appreciate the effort that the drafting team has put in this standard and would like to say thank you (my hat comes off to you).

Organization	Question 5 Comments:
Response: The SPT SDT thanks you for your clarifying comment.	
Seattle City Light	The increase in time for the simulation was necessary. Vendors will be flooded with requests to model their system for this simulation requirement and this will take time.
Response: The SPT SDT thanks you for your clarifying comment.	
SERC Standards Review Group	No further comments. The drafting team is to be commended for its diligent efforts on revisions to this draft standard.
Response: The SPT SDT thanks you for your clarifying comment.	
Duke Energy	As we read this standard, we see nothing that precludes the use of contractors to perform System Operators' tasks, or training of the System Operators. We agree that the use of contractors is one of the ways to train or fulfill system operator positions.
Response: The SPT SDT thanks you for your clarifying comment.	
PowerSouth Energy Cooperative	
WECC Reliability Coordination Comment Working Group	
Bonneville Power Administration	
Santee Cooper	
SRP	
Ontario IESO	
AEP	
ISO/RTO Council - Standards Review Committee	
NorthWestern Corporation	
CenterPoint Energy	
Ameren	
NPCC	
Manitoba Hydro	
Wapa (Loveland, Co)	
ISO New England Inc.	

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Standards Announcement

Two Ballot Pools and Pre-ballot Windows Open
September 26–October 25, 2008

Now available at: https://standards.nerc.net/BallotPool.aspx

New Standard: PER-005-1— System Personnel Training (Project 2006-01)

A 30-day ballot pool and pre-ballot window is now open until **8:00 a.m. EDT on October 25, 2008** for the following items: a new standard (PER-005-1 — System Personnel Training), an associated implementation plan, and a reference document to aid in implementing the standard. The ballot for this standard includes the retirement of the associated approved standard PER-002-0 — Operating Personnel Training as well as conforming changes to PER-004-1 — Reliability Coordination — Staffing.

The purpose of the standard is to help ensure that that System Operators performing real-time, reliability-related tasks on the North American bulk electric system are competent to perform those reliability-related tasks. The proposed standard is applicable to Reliability Coordinators, Balancing Authorities, and Transmission Operators.

Project Page:
http://www.nerc.com/filez/standards/System-Personnel-Training.html

During the pre-ballot window, members of the ballot pool may communicate with one another by using their "ballot pool list server." The list server for this ballot pool is: bp_PER-005-1_in@nerc.com. Once the balloting begins, ballot pool members are prohibited from using the ballot pool list servers.

New Standard: FAC-008-2 — Facility Ratings (Project 2006-09)

A 30-day ballot pool and pre-ballot window is now open until **8:00 a.m. EDT on October 25, 2008** for the following items: a new standard (FAC-008-2 — Facility Ratings) and an associated implementation plan. The ballot for this standard includes the retirement of the associated approved standards FAC-008-01— Facility Ratings Methodology and FAC-009-01 — Establish and Communicate Facility Ratings.

The Facility Ratings standard is undergoing modifications to address the directives in FERC Order 693. The purpose of the standard is to ensure that Facility Ratings used in the reliable planning and operation of the bulk electric system are determined based on technically sound principles.

Project Page:
http://www.nerc.com/filez/standards/Facility_Ratings_Project_2006-09.html

During the pre-ballot window, members of the ballot pool may communicate with one another by using their "ballot pool list server." The list server for this ballot pool is: bp_FAC-008-1_in@nerc.com. Once the balloting begins, ballot pool members are prohibited from using the ballot pool list servers.

Standards Development Process

The Reliability Standards Development Procedure contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

For more information or assistance, please contact Shaun Streeter, Standards Program Administrator, at shaun.streeter@nerc.net or at 609.452.8060.

North American Electric Reliability Corporation
116-390 Village Blvd.
Princeton, NJ 08540
609.452.8060 | www.nerc.com

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. Standards Committee approves SAR for posting on December 1, 2004.
2. SAR Drafting Team posted SAR for comments on December 7, 2004.
3. SAR Drafting Team responds to comments, revises SAR, and posts revised SAR for comments on February 17, 2006.
4. SAR Drafting Team responds to comments and revises SAR on May 15, 2006.
5. Standards Committee approves development of Standard on May 15, 2006.
6. The Standards Authorization Committee appointed the Standard Drafting Team on June 21, 2006.
7. Standards Drafting Team posted draft standard for comment on September 27, 2006.
8. Standards Drafting Team responded to comments and posted the revised standard on August 15, 2007.
9. Standard Drafting Team responded to comments and posted the revised standard for comment on February 15, 2008.
10. Standards Drafting Team responded to comments and posted the revised standard for comment on June 18, 2008.
11. Standards Drafting Team responded to comments from the fourth posting and will request the Standards Committee to move the standard forward to balloting on September 15, 2008.

Proposed Action Plan and Description of Current Draft:

This is the fifth version of the proposed standard and its associated implementation plan that has been posted for industry comments. The drafting team will be requesting the Standards Committee to move the standard forward to balloting.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments on the fourth draft of the proposed standard.	September 15, 2008
2. Obtain the Standards Committee's approval to move the standard forward to balloting.	September 15, 2008
3. Post the standard and implementation plan for a 30-day pre-ballot review.	September 17, 2008
4. Conduct an initial ballot for ten days.	October 17, 2008
5. Respond to comments submitted with the initial ballot.	November 1, 2008

6. Conduct a recirculation ballot for ten days.	November 11, 2008
7. Post for a 30-day preview for board.	November 21, 2008
8. BOT adoption.	December 22, 2008

A. Introduction

1. Title: **System Personnel Training**

2. Number: PER-005-1

3. Purpose: To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent to perform those reliability-related tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.

4. Applicability:

4.1. Functional Entities:

4.1.1 Reliability Coordinator.

4.1.2 Balancing Authority.

4.1.3 Transmission Operator.

5. Proposed Effective Date for Regulatory Approvals:

5.1. In those jurisdictions where regulatory approval is required, Requirement R1 and Requirement R2 shall become effective on the first day of the first calendar quarter, 24 months after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, Requirement R1 and Requirement R2 shall become effective on the first day of the first calendar quarter, 24 months after Board of Trustees adoption.

5.2. In those jurisdictions where regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after Board of Trustees adoption.

5.3. In those jurisdictions where regulatory approval is required Sub-requirement R3.1 shall become effective on the first day of the first calendar quarter, 36 months after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, the Sub-requirement R3.1 shall become effective on the first day of the first calendar quarter, 36 months after Board of Trustees adoption.

B. Requirements

R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall create a list of BES company-specific reliability-related tasks performed by its System Operators.

R1.1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall update its list of BES company-specific reliability-related tasks performed by its System Operators each calendar year to identify new or modified tasks for inclusion in training.

R1.2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall design and develop learning objectives and training materials based on the task list created in R1.1.

R1.3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall deliver the training established in R1.2.

R1.4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of the training program established in R1, to identify any needed changes to the training program and shall implement the changes identified.

R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

R2.1. Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks.

R3. At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R3.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

C. Measures

M1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence of using a systematic approach to training to establish and implement a training program, as specified in R1.

M1.1 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its company-specific reliability-related task list, with the date of the last review and/or revision, as specified in R1.1.

M1.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and training materials, as specified in R1.2.

M1.3 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection System Operator training records showing the names of the people trained, the title of the training delivered and the dates of delivery to show that it delivered the training, as specified in R1.3.

M1.4 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence (such as instructor observations, trainee feedback, supervisor feedback, course evaluations, learning assessments, or internal audit results) that it performed an annual training program evaluation, as specified in R1.4

M2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence to show that it verified that each of its System Operators is

capable of performing each assigned task identified in R1.1, as specified in R2. This evidence can be documents such as training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments.

M3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator has obtained 32 hours of emergency operations training, as specified in R3.

M3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator received emergency operations training using simulation technology, as specified in R3.1.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

1.2. Compliance Monitoring Period and Reset

Not Applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance for three years or since its last compliance audit, whichever time frame is the greatest, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.

If a Reliability Coordinator, Balancing Authority and Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1	None	The responsible entity failed to provide evidence that it updated its company-specific reliability-related task list to identify new or modified tasks each calendar year (R1.1.1) OR The responsible entity failed to provide evidence of evaluating its training program to identify needed changes to its training program(s). (R1.4)	The responsible entity failed to design and develop learning objectives and training materials based on the BES company specific reliability related tasks. (R1.2)	The responsible entity failed to prepare a company-specific reliability-related task list (R1.1) OR The responsible entity failed to deliver training based on the BES company specific reliability related tasks. (R1.3)
R2	None	The responsible entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)	The responsible entity verified at least 70% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks (R2) OR The responsible entity failed to verify its system operator's capabilities to perform each new or modified task within six months of making a modification to its BES company-specific reliability-related task list. (R2.1)	The responsible entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)
R3	None	The responsible entity provided at least 32 hours of emergency operations training to at least 90% but less than 100% of their System Operators. (R3)	The responsible entity provided at least 32 hours of emergency operations training to at least 70% but less than 90% of its System Operators. (R3)	The responsible entity provided 32 hours of emergency operations training to less than 70% of its System Operators (R3)

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
				OR The responsible entity did not include simulation technology replicating the operational behavior of the BES in its emergency operations training. (R3.1)

E. Regional Variances

None.

Version History

Version	Date	Action	Change Tracking

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. Standards Committee approves SAR for posting on December 1, 2004.
2. SAR Drafting Team posted SAR for comments on December 7, 2004.
3. SAR Drafting Team responds to comments, revises SAR, and posts revised SAR for comments on February 17, 2006.
4. SAR Drafting Team responds to comments and revises SAR on May 15, 2006.
5. Standards Committee approves development of Standard on May 15, 2006.
6. The Standards Authorization Committee appointed the Standard Drafting Team on June 21, 2006.
7. Standards Drafting Team posted draft standard for comment on September 27, 2006.
8. Standards Drafting Team responded to comments and posted the revised standard on August 15, 2007.
9. Standard Drafting Team responded to comments and posted the revised standard for comment on February 15, 2008.
10. Standards Drafting Team responded to comments and posted the revised standard for comment on June 18, 2008.
11. Standards Drafting Team responded to comments from the fourth posting and will request the Standards Committee to move the standard forward to balloting on September 15, 2008.

Proposed Action Plan and Description of Current Draft:

This is the fifth version of the proposed standard and its associated implementation plan that has been posted for industry comments. The drafting team will be requesting the Standards Committee to move the standard forward to balloting.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments on the fourth draft of the proposed standard.	September 15, 2008
2. Obtain the Standards Committee's approval to move the standard forward to balloting.	September 15, 2008
3. Post the standard and implementation plan for a 30-day pre-ballot review.	September 17, 2008
4. Conduct an initial ballot for ten days.	October 17, 2008
5. Respond to comments submitted with the initial ballot.	November 1, 2008

6. Conduct a recirculation ballot for ten days.	November 11, 2008
7. Post for a 30-day preview for board.	November 21, 2008
8. BOT adoption.	December 22, 2008

A. Introduction

1. Title: **System Personnel Training**

2. Number: PER-005-1

3. Purpose: To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent to perform those reliability-related tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.

4. Applicability:

4.1. Functional Entities:

4.1.1 Reliability Coordinator.

4.1.2 Balancing Authority.

4.1.3 Transmission Operator.

5. Proposed Effective Date for Regulatory Approvals:

5.1. In those jurisdictions where regulatory approval is required, Requirement R1 and Requirement R2 shall become~~s~~ effective on the first day of the first calendar quarter, 24 months after ~~the first day of the first calendar quarter following~~ applicable regulatory approval. ~~, or i~~In those jurisdictions where no regulatory approval is required, Requirement R1 and Requirement R2 shall ~~the Reliability Standard~~ become~~s~~ effective on the first day of the first calendar quarter, 24 months after ~~the first day of the first calendar quarter after~~ Board of Trustees adoption.

5.2. In those jurisdictions where regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after Board of Trustees adoption.~~Requirement R3 is presently in effect and will remain in effect upon approval of this Standard.~~

5.3. In those jurisdictions where regulatory approval is required ~~S~~sub~~-R~~requirement R3.1 shall become~~s~~ effective on the first day of the first calendar quarter, 36 months after ~~the first day of the first calendar quarter following~~ applicable regulatory approval. ~~I, or i~~n those jurisdictions where no regulatory approval is required, ~~the S~~s~~s~~ub~~-~~requirement R3.1 shall become~~s~~ effective on the first day of the first calendar quarter, 36 months after ~~the first day of the first calendar quarter after~~ Board of Trustees adoption.

B. Requirements

R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall create a list of BES company-specific reliability-related tasks performed by its System Operators.

R1.1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall update its list of BES company-specific reliability-related

tasks performed by its System Operators each calendar yearat least annually to identify new or modified tasks for inclusion in training.

R1.2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall design and develop learning objectives and training materials based on the task list created in R1.1.

R1.3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall deliver the training established in R1.2.

R1.4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of the training program established in R1, to identify any needed changes to the training program and shall implement the changes identified.

R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

R2.1. Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks.

R3. At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel~~,~~. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R3.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

C. Measures

M1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence of using a systematic approach to training to establish and implement a training program, as specified in R1.

M1.1 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its company-specific reliability-related task list, with the date of the last review and/or revision, as specified in R1.1.

M1.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and training materials, as specified in R1.2.

M1.3 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection System Operator training records showing the names of the people trained, the title of the training delivered and the dates of delivery to show that it delivered the training, as specified in R1.3.

M1.4 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence (such as instructor observations, trainee

feedback, supervisor feedback, course evaluations, learning assessments, or internal audit results) that it performed an annual training program evaluation, as specified in R1.4

M2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence to show that it verified that each of its System Operators is capable of performing each assigned task identified in R1.1, as specified in R2. This evidence can be documents such as training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments.

M3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator has obtained 32 hours of emergency operations training, as specified in R3.

M3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator received emergency operations training using simulation technology, as specified in R3.1.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

1.2. Compliance Monitoring Period and Reset

Not Applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance for three years or since its last compliance audit, whichever time frame is the greatest, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.~~.~~

If a Reliability Coordinator, Balancing Authority and Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.5. Additional Compliance Information

None.

~~2.~~Violation Severity Levels

2.

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1	None	The responsible entity failed to provide evidence that it updated its company-specific reliability-related task~~s~~ list to identify new or modified tasks each calendar year~~on an annual basis~~ (R1.1.1) OR The responsible entity failed to provide evidence of evaluating its training program to identify needed changes to its training program(s). (R1.4)	The responsible entity failed to design and develop learning objectives and training materials based on the BES company specific reliability related tasks ~~(when developing a new or modifying an existing training program)~~. (R1.2)	~~When developing a new or modifying an existing training program, t~~The responsible entity failed to prepare a company-specific reliability-related task~~s~~ list (R1.1) OR ~~When developing a new or modifying an existing training program t~~The responsible entity failed to deliver training based on the BES company specific reliability related tasks. (R1.3)
R2	None	The responsible entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)	The responsible entity verified at least 70% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks (R2) OR The responsible entity failed to verify its system operator's capabilities to perform each new or modified task within six months of making a modification to its BES company-specific reliability~~-~~ related task~~s~~ list. (R2.1)	The responsible entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R3	None	The responsible entity provided at least 32 hours of emergency operations training to at least 90% but less than 100% of their System Operators. (R3)	The responsible entity provided at least 32 hours of emergency operations training to at least 70% but less than 90% of its System Operators. (R3)	The responsible entity provided 32 hours of emergency operations training to less than 70% of its System Operators (R3) OR The responsible entity did not include simulation technology replicating the operational behavior of the BES in its emergency operations training. (R3.1)

E. Regional Variances

None.

Version History

Version	Date	Action	Change Tracking

A. Introduction

1. Title: Reliability Coordination — Staffing

2. Number: PER-004-2

3. Purpose:

Reliability Coordinators must have sufficient, competent staff to perform the Reliability Coordinator functions.

4. Applicability

4.1. Reliability Coordinators.

5. Effective Date:

- Retire Requirement 2 when PER-005-1 Requirement 3 becomes effective.
- Retire Requirements 3 and 4 when PER-005-1 Requirements 1 and 2 become effective.

B. Requirements

R1. Each Reliability Coordinator shall be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

R2. Reliability Coordinator operating personnel shall place particular attention on SOLs and IROLs and inter-tie facility limits. The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times.

C. Measures

None

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an

extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

Each Reliability Coordinator shall keep evidence of compliance for the previous two calendar years plus the current year.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

1.4. Additional Compliance Information

None.

2. Levels of Non-Compliance for a Reliability Coordinator (Replaced with VSLs)

2.1.

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised
2		Retire R2 and M1 when PER-005-1 Requirement 3 becomes effective. Retire R3, R4 and M2 when PER-005 R1 and R2 become effective.	Revised

A. Introduction

1. Title: **Reliability Coordination — Staffing**

2. Number: PER-004-~~1~~2

3. Purpose:

Reliability Coordinators must have sufficient, competent staff to perform the Reliability Coordinator functions.

4. Applicability

4.1. Reliability Coordinators.

5. Effective Date: ~~January 1, 2007~~

- Retire Requirement~~s~~ 2 ~~and 5 retired~~ when PER-005-1 Requirement 3 becomes effective.
- ~~1.~~ Retire Requirements 3 and 4 ~~retired~~ when PER-005-1 Requirements 1 and 2 become effective.

B. Requirements

R1. Each Reliability Coordinator shall be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

~~**R2.** All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.~~

~~**R3.** Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.~~

~~**R4.** Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.~~

R2. Reliability Coordinator operating personnel shall place particular attention on SOLs and IROLs and inter-tie facility limits. The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times.

C. Measures

None

~~**M1.** The Reliability Coordinator shall have and provide upon request training records that confirm that each of its operating personnel has completed a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel, as specified in Requirement 2.~~

M2.Each Reliability Coordinator shall have and provide upon request evidence that could include but is not limited to, a documented training program and individual training records for each of its operating personnel or other equivalent evidence that will be used to confirm that it meets Requirements 3 and 4.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

Each Reliability Coordinator shall keep evidence of compliance for the previous two calendar years plus the current year.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

1.4. Additional Compliance Information

None.

2. Levels of Non-Compliance for a Reliability Coordinator (Replaced with VSLs)

2.1.Level 1: Not applicable.

2.2. **Level 2:** Not applicable.

2.3. **Level 3:** Not applicable.

2.4.2.1. **Level 4:** There shall be a separate Level 4 non-compliance, for every one of the following requirements that is in violation:

2.4.1 One or more of its shift operating personnel did not complete a minimum of five days per year of training and drills using realistic simulations of system emergencies in the past year. (R2)

2.4.2 No evidence operating personnel have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas. (R3)

2.4.3 No evidence operating personnel have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area. (R4)

E. Regional Differences

1. None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed "Proposed" from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised
2		Retire R2 and M1 when PER-005-1 Requirement 3 becomes effective. Retire R3, R4 and M2 when PER-005 R1 and R2 become effective.	Revised

The SPT SDT recommends that this entire standard be retired when PER-005 becomes effective.

A. Introduction

1. **Title:** **Operating Personnel Training**

2. **Number:** PER-002-0

3. **Purpose:** Each Transmission Operator and Balancing Authority must provide their personnel with a coordinated training program that will ensure reliable system operation.

4. **Applicability**

   4.1. Balancing Authority.

   4.2. Transmission Operator.

5. **Effective Date:** April 1, 2005

B. Requirements

R1. Each Transmission Operator and Balancing Authority shall be staffed with adequately trained operating personnel.

R2. Each Transmission Operator and Balancing Authority shall have a training program for all operating personnel that are in:

R2.1. Positions that have the primary responsibility, either directly or through communications with others, for the real-time operation of the interconnected Bulk Electric System.

R2.2. Positions directly responsible for complying with NERC standards.

R3. For personnel identified in Requirement R2, the Transmission Operator and Balancing Authority shall provide a training program meeting the following criteria:

R3.1. A set of training program objectives must be defined, based on NERC and Regional Reliability Organization standards, entity operating procedures, and applicable regulatory requirements. These objectives shall reference the knowledge and competencies needed to apply those standards, procedures, and requirements to normal, emergency, and restoration conditions for the Transmission Operator and Balancing Authority operating positions.

R3.2. The training program must include a plan for the initial and continuing training of Transmission Operator and Balancing Authority operating personnel. That plan shall address knowledge and competencies required for reliable system operations.

R3.3. The training program must include training time for all Transmission Operator and Balancing Authority operating personnel to ensure their operating proficiency.

R3.4. Training staff must be identified, and the staff must be competent in both knowledge of system operations and instructional capabilities.

R4. For personnel identified in Requirement R2, each Transmission Operator and Balancing Authority shall provide its operating personnel at least five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.

C. Measures

M1. The Transmission Operator and Balancing Authority operating personnel training program shall be reviewed to ensure that it is designed to promote reliable system operations.

D. Compliance

1. Compliance Monitoring Process

Periodic Review: The Regional Reliability Organization will conduct an on-site review of the Transmission Operator and Balancing Authority operating personnel training program every three years. The operating personnel training records will be reviewed and assessed compared to the program curriculum.

1.1. Compliance Monitoring Responsibility

Self-certification: The Transmission Operator and Balancing Authority will annually provide a self-certification based on Requirements R1 through R4.

1.2. Compliance Monitoring Period and Reset Timeframe

One calendar year.

1.3. Data Retention

Three years.

1.4. Additional Compliance Information

Not specified.

2. Levels of Non-Compliance

2.1. Level 1: N/A.

2.2. Level 2: The Transmission Operator or Balancing Authority operating personnel training program does not address all elements of Requirement R3.

2.3. Level 3: The Transmission Operator or Balancing Authority operating personnel training program does not address Requirement R4.

2.4. Level 4: A Transmission Operator or Balancing Authority has not provided a training program for its operating personnel.

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Proposed Effective Date	Errata

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Implementation Plan for PER-005-1 – System Personnel Training

Prerequisite Approvals

There are no other reliability standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this standard can be implemented.

Modified Standards

PER-002-0 should be retired when PER-005-0 becomes effective.

PER-004-1 Requirements 2, 3 and 4 should be retired when PER-005-1 becomes effective.

The following tables summarize the mapping of the PER-004-1 requirements to PER-005-1 and other standard requirements:

PER-004-1 Requirement	PER-005-1 Requirements
R2. All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.	R3. At least every 12 months, each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each System Operator with at least 32 hours of emergency operations training applicable to its organization that reflect emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. Note: PER-005-1 R3 includes PER-004-1 R2 and therefore PER-004-1 R2 should be retired. (Note that the five days per year of training has been clarified to mean 32 hours of training.)
R3. Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and implement the program. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each task identified in R1.1 at least one time.

PER-004-1 Requirement	PER-005-1 Requirements
	Note: The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R2) duplicate PER-004-1 R3 and therefore PER-004-1 R3 should be retired.
R4. Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each task identified in R1.1 at least one time. Note: The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R3) duplicate PER-004-1 R4 and therefore PER-004-1 R4 should be removed.

A red-line version of PER-004-1 is posted with this Implementation Plan.

Compliance with Standards

Once this standard becomes effective, the responsible entities identified in the applicability section of the standard must comply with the requirements. These include:

- Reliability Coordinators
- Balancing Authorities
- Transmission Operators

Proposed Effective Date

Compliance with PER-005 shall be implemented over a three-year period, as follows:

- Requirement R1 and Requirement R2 become effective the first day of the first calendar quarter 24 months after regulatory approval or, in those jurisdictions where regulatory approval is not required, these requirements become effective the first day of the first calendar quarter 24 months after Board of Trustees adoption.
- PER-002-0 Requirement R4 and PER-004-1 Requirement R2 are presently in effect and will be retired when PER-005-1 Requirement R3 becomes effective on the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, on the first day of the first calendar quarter following Board of Trustees adoption.
- Subrequirement R3.1 becomes effective on the first day of the first calendar quarter 36 months after applicable regulatory approval, or in those jurisdictions where no regulatory approval is required, this subrequirement becomes effective on the first day of the first calendar quarter 36 months after Board of Trustees adoption.

Training

- The SPT SDT will provide training on the use of a systematic approach to training, either in conjunction with a NERC workshop or independent PER-005 training, dependent on the preference of the industry.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Implementation Plan for PER-005-1 – System Personnel Training

Prerequisite Approvals

There are no other reliability standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this standard can be implemented.

Modified Standards

PER-002-0 should be retired when PER-005-0 becomes effective.

PER-004-1 Requirements 2, 3 and 4 should be retired when PER-005-1 becomes effective.

The following tables summarize the mapping of the PER-004-1 requirements to PER-005-1 and other standard requirements:

PER-004-1 Requirement	PER-005-1 Requirements
R2. All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.	R3. At least every 12 months, each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each System Operator with at least 32 hours of emergency operations training applicable to its organization that reflect emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. Note: PER-005-1 R3 includes PER-004-1 R2 and therefore PER-004-1 R2 should be retired. (Note that the five days per year of training has been clarified to mean 32 hours of training.)
R3. Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and implement the program. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each task identified in R1.1 at least one time.

PER-004-1 Requirement	PER-005-1 Requirements
	Note: The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R2) duplicate PER-004-1 R3 and therefore PER-004-1 R3 should be retired.
R4. Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each task identified in R1.1 at least one time. Note: The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R3) duplicate PER-004-1 R4 and therefore PER-004-1 R4 should be removed.

A red-line version of PER-004-1 is posted with this Implementation Plan.

Compliance with Standards

Once this standard becomes effective, the responsible entities identified in the applicability section of the standard must comply with the requirements. These include:

- Reliability Coordinators
- Balancing Authorities
- Transmission Operators

Proposed Effective Date

Compliance with PER-005 shall be implemented over a three-year period, as follows:

- Requirement R1 and Requirement R2 become effective ~~24 months after~~ the first day of the first calendar quarter 24 months after~~following~~ regulatory approval or, in those jurisdictions where regulatory approval is not required, these requirements ~~otherwise~~ become~~s~~ effective ~~24 months after~~ the first day of the first calendar quarter 24 months after Board of Trustee~~s~~ adoption.
- PER-002-0 Requirement R4 and PER-004-1 Requirement R2 are presently in effect and will be retired when PER-005-1 Requirement R3 becomes effective on the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, on the first day of the first calendar quarter following Board of Trustees adoption.
- ~~is presently in effect and will remain in effect upon approval of this Standard~~.
- Sub-r~~R~~equirement R3.1 becomes effective on~~36 months after~~ the first day of the first calendar quarter 36 months after~~following~~ applicable regulatory approval, or in those jurisdictions where no regulatory approval is required, this sub-requirement becomes effective on ~~36 months after~~ the first day of the first calendar quarter 36 months after Board of Trustee~~s~~ adoption.

Training

- The SPT will provide training on the use of a systematic approach to training, either in conjunction with a NERC workshop or independent PER-005 training, dependent on the preference of the industry.

PER-005 System Personnel Training
Reference Document

Reference #1: Determining Task Performance Requirements

The purpose of this reference is to provide guidance in writing a performance standard that describes the desired outcome of a task. A standard for acceptable performance should be in either measurable or observable terms.

Clear standards of performance are necessary for an individual to know when he or she has completed the task and to ensure agreement between employees and their supervisors on the objective of a task. Performance standards answer the following questions:

How timely must the task be performed?

Or

How accurately must the task be performed?

Or

With what quality must it be performed?

Or

What response from the customer must be accomplished?

When a performance standard is quantifiable, successful performance is more easily demonstrated. For example, in the following task statement, the criteria for successful performance is to return system loading to within normal operating limits, which is a number that can be easily verified.

> Given a System Operating Limit violation on the transmission system, implement the correct procedure for the circumstances to mitigate loading to within normal operating limits.

Even when the outcome of a task cannot be measured as a number, it may still be observable. The next example contains performance criteria that is qualitative in nature, that is, it can be verified as either correct or not, but does not involve a numerical result.

> Given a tag submitted for scheduling, ensure that all transmission rights are assigned to the tag per the company Tariff and in compliance with NERC and NAESB standards.

Reference #2: Systematic Approach to Training References:

The following list of hyperlinks identifies references for the NERC Standard PER-005 to assist with the application of a systematic approach to training:

(1) DOE-HDBK-1078-94, A Systematic Approach to Training
http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf

(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910
http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html

(3) ADDIE – 1975, Florida State University
http://www.nwlink.com/~donclark/history_isd/addie.html

(4) DOE Standard - Table-Top Needs Analysis
DOE-HDBK-1103-96
http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf

Reference #3: Normal and Emergency Operations Topics

These topics are identified as meeting the topic criteria for normal and emergency operations training per Requirement 1 and Requirement 3 of this standard.

A. Recognition and Response to System Emergencies

1. Emergency drills and responses
2. Communication tools, protocols, coordination
3. Operating from backup control centers
4. System operations during unstudied situations
5. System Protection
6. Geomagnetic disturbances weather impacts on system operations
7. System Monitoring – voltage, equipment loading
8. Real-time contingency analysis
9. Offline system analysis tools
10. Monitoring backup plans
11. Sabotage, physical, and cyber threats and responses

B. Operating Policies and Standards Related to Emergency Operations

1. NERC standards that identify emergency operations practices (e.g. EOP Standards)
2. Regional reliability operating policies
3. Sub-regional policies and procedures
4. ISO/RTO policies and procedures

C. Power System Restoration Philosophy and Practices

1. Black start
2. Interconnection of islands – building islands
3. Load shedding – automatic (under-frequency and under-voltage) and manual
4. Load restoration philosophies

D. Interconnected Power System Operations

1. Operations coordination
2. Special protections systems
3. Special operating guides
4. Voltage and reactive control, including responding to eminent voltage collapse
5. Understanding the concepts of Interconnection Reliability Operating Limits versus System Operating Limits
6. DC tie operations and procedures during system emergencies
7. Thermal and dynamic limits
8. Unscheduled flow mitigation − congestion management
9. Local and regional line loading procedures
10. Radial load and generation operations and procedures
11. Tie line operations
12. E-tagging and Interchange Scheduling
13. Generating unit operating characteristics and limits, especially regarding reactive capabilities and the relationship between real and reactive output

E. Technologies and Tools

1. Forecasting tools
2. Power system study tools
3. Interchange Distribution Calculator (IDC)

F. Market Operations as They Relate to Emergency Operations

1. Market rules
2. Locational Marginal Pricing (LMP)
3. Transmission rights
4. OASIS
5. Tariffs
6. Fuel management
7. Real-time, hour-ahead and day-ahead tools

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Standards Announcement

Two Initial Ballot Windows Open
October 27–November 5, 2008

Now available at: https://standards.nerc.net/CurrentBallots.aspx

Standard PER-005-1— System Personnel Training (Project 2006-01)

An initial ballot window is now open **until 8 p.m. EST on November 5, 2008** for the following items: a new standard (PER-005-1 — System Personnel Training), an associated implementation plan, and a reference document to aid in implementing the standard. The ballot for this standard includes the retirement of the associated approved standard PER-002-0 — Operating Personnel Training as well as conforming changes to PER-004-1 — Reliability Coordination — Staffing.

The purpose of the standard is to help ensure that that System Operators performing real-time, reliability-related tasks on the North American bulk electric system are competent to perform those reliability-related tasks. The proposed standard is applicable to Reliability Coordinators, Balancing Authorities, and Transmission Operators.

Project Page:
http://www.nerc.com/filez/standards/System-Personnel-Training.html

Standard FAC-008-2 — Facility Ratings (Project 2006-09)

An initial ballot window is now open **until 8 p.m. EST on November 5, 2008** for the following items: a new standard (FAC-008-2 — Facility Ratings) and an associated implementation plan. The ballot for this standard includes the retirement of the associated approved standards FAC-008-1— Facility Ratings Methodology and FAC-009-1 — Establish and Communicate Facility Ratings.

The Facility Ratings standard is undergoing modifications to address the directives in FERC Order 693. The purpose of the standard is to ensure that Facility Ratings used in the reliable planning and operation of the bulk electric system are determined based on technically sound principles.

Project Page:
http://www.nerc.com/filez/standards/Facility_Ratings_Project_2006-09.html

Standards Development Process

The Reliability Standards Development Procedure contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

For more information or assistance, please contact Shaun Streeter, Standards Program Administrator, at shaun.streeter@nerc.net or at 609.452.8060.

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Standards Announcement

Initial Ballot Results

Now available at: https://standards.nerc.net/Ballots.aspx

Standard PER-005-1 — System Personnel Training (Project 2006-01)

The initial ballot results for standard PER-005-1 — System Personnel Training are shown below. The ballot includes the retirement of the associated approved standard PER-002-0 — Operating Personnel Training as well as conforming changes to PER-004-1 — Reliability Coordination — Staffing.

Quorum:	90.13 %
Approval:	82.47 %

Approval requires both:

- A quorum, which is established by at least 75% of the members of the ballot pool for submitting either an affirmative vote, a negative vote, or an abstention; and
- A two-thirds majority of the weighted segment votes cast must be affirmative. The number of votes cast is the sum of affirmative and negative votes, excluding abstentions and nonresponses.

The Ballot Results Web page provides a link to the detailed results of this ballot. The ballot received some negative votes with comments, and the drafting team will review the comments before determining its next step.

Project page: http://www.nerc.com/filez/standards/System-Personnel-Training.html

Standard FAC-008-2 — Facility Ratings (Project 2006-09)

The initial ballot results for standard FAC-008-2 — Facility Ratings are shown below. The ballot ncludes the retirement of the associated approved standards FAC-008-01— Facility Ratings Methodology and FAC-009-01 — Establish and Communicate Facility Ratings.

Quorum:	89.13 %
Approval:	70.01 %

Approval requires both:

- A quorum, which is established by at least 75% of the members of the ballot pool for submitting either an affirmative vote, a negative vote, or an abstention; and

- A two-thirds majority of the weighted segment votes cast must be affirmative. The number of votes cast is the sum of affirmative and negative votes, excluding abstentions and nonresponses.

The Ballot Results Web page provides a link to the detailed results of this ballot. The ballot received some negative votes with comments, and the drafting team will review the comments before determining its next step.

Project Page: http://www.nerc.com/filez/standards/Facility_Ratings_Project_2006-09.html.

Standards Development Process

The Reliability Standards Development Procedure contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

For more information or assistance,
please contact Shaun Streeter at shaun.streeter@nerc.net or at 609.452.8060.

Ballot Results

Ballot Name:	Project 2006-01 - PER-005-1_in
Ballot Period:	10/27/2008 - 11/5/2008
Ballot Type:	Initial
Total # Votes:	201
Total Ballot Pool:	223
Quorum:	**90.13 % The Quorum has been reached**
Weighted Segment Vote:	82.47 %
Ballot Results:	**The standard will proceed to recirculation ballot.**

Summary of Ballot Results

Segment	Ballot Pool	Segment Weight	Affirmative # Votes	Affirmative Fraction	Negative # Votes	Negative Fraction	Abstain # Votes	No Vote
1 - Segment 1.	63	1	48	0.828	10	0.172	1	4
2 - Segment 2.	10	0.9	7	0.7	2	0.2	0	1
3 - Segment 3.	51	1	34	0.791	9	0.209	1	7
4 - Segment 4.	13	1	9	0.818	2	0.182	1	1
5 - Segment 5.	42	1	30	0.833	6	0.167	1	5
6 - Segment 6.	27	1	20	0.833	4	0.167	1	2
7 - Segment 7.	0	0	0	0	0	0	0	0
8 - Segment 8.	2	0.2	2	0.2	0	0	0	0
9 - Segment 9.	6	0.6	6	0.6	0	0	0	0
10 - Segment 10.	9	0.7	5	0.5	2	0.2	0	2
Totals	**223**	**7.4**	**161**	**6.103**	**35**	**1.297**	**5**	**22**

Individual Ballot Pool Results

Segment	Organization	Member	Ballot	Comments
1	AltaLink Management Ltd.	Rick Spyker	Affirmative	
1	Ameren Services	Kirit S. Shah	Affirmative	View
1	American Electric Power	Paul B. Johnson	Affirmative	
1	American Transmission Company, LLC	Jason Shaver	Affirmative	View
1	Associated Electric Cooperative, Inc.	John Bussman	Negative	View
1	ATCO Electric	Doug Smeall	Affirmative	
1	Avista Corp.	Scott Kinney	Affirmative	
1	Bonneville Power Administration	Donald S. Watkins	Affirmative	View

1	Brazos Electric Power Cooperative, Inc.	Tony Kroskey	Negative	View
1	CenterPoint Energy	Paul Rocha	Negative	View
1	Central Maine Power Company	Brian Conroy	Affirmative	
1	City Utilities of Springfield, Missouri	Jeff Knottek	Affirmative	
1	Cleco Power LLC	Danny McDaniel	Affirmative	
1	Consolidated Edison Co. of New York	Christopher L de Graffenried	Affirmative	
1	Dairyland Power Coop.	Robert W. Roddy	Affirmative	
1	Dominion Virginia Power	William L. Thompson	Affirmative	
1	Duke Energy Carolina	Douglas E. Hils	Affirmative	View
1	E.ON U.S. LLC	Larry Monday	Affirmative	
1	El Paso Electric Company	Dennis Malone	Affirmative	
1	Entergy Corporation	George R. Bartlett	Affirmative	
1	Farmington Electric Utility System	Alan Glazner	Affirmative	
1	FirstEnergy Energy Delivery	Robert Martinko	Affirmative	View
1	Florida Keys Electric Cooperative Assoc.	Dennis Minton	Negative	
1	Florida Power & Light Co.	C. Martin Mennes		
1	Great River Energy	Gordon Pietsch	Affirmative	
1	Hoosier Energy Rural Electric Cooperative, Inc.	Damon Holladay	Affirmative	
1	Hydro One Networks, Inc.	Ajay Garg	Affirmative	View
1	Idaho Power Company	Ronald D. Schellberg	Affirmative	
1	ITC Transmission	Elizabeth Howell	Affirmative	
1	JEA	Ted E. Hobson	Affirmative	
1	Kansas City Power & Light Co.	Jim Useldinger	Affirmative	
1	Lincoln Electric System	Doug Bantam	Affirmative	
1	Manitoba Hydro	Michelle Rheault	Affirmative	
1	Minnesota Power, Inc.	Carol Gerou		
1	National Grid	Michael J Ranalli	Affirmative	
1	Nebraska Public Power District	Richard L. Koch	Affirmative	
1	New York Power Authority	Ralph Rufrano	Affirmative	
1	Northeast Utilities	David H. Boguslawski	Affirmative	
1	Northern Indiana Public Service Co.	Joseph Dobes	Negative	View
1	Ohio Valley Electric Corp.	Robert Mattey	Affirmative	
1	Orange and Rockland Utilities, Inc.	Edward Bedder	Abstain	
1	Orlando Utilities Commission	Brad Chase	Affirmative	
1	Otter Tail Power Company	Lawrence R. Larson	Affirmative	
1	Pacific Gas and Electric Company	Chifong L. Thomas	Affirmative	
1	PacifiCorp	Robert Williams		
1	Potomac Electric Power Co.	Richard J. Kafka	Affirmative	
1	PP&L, Inc.	Ray Mammarella	Negative	View
1	Progress Energy Carolinas	Sammy Roberts	Affirmative	
1	Public Service Electric and Gas Co.	Kenneth D. Brown	Affirmative	
1	Puget Sound Energy, Inc.	Catherine Koch	Negative	View
1	Sacramento Municipal Utility District	Dilip Mahendra	Affirmative	
1	Salt River Project	Robert Kondziolka	Affirmative	
1	Santee Cooper	Terry L. Blackwell	Negative	View
1	SaskPower	Wayne Guttormson		
1	Seattle City Light	Pawel Krupa	Affirmative	
1	Sierra Pacific Power Co.	Richard Salgo	Affirmative	View
1	Southern Company Services, Inc.	Horace Stephen Williamson	Negative	View
1	Southwest Transmission Cooperative, Inc.	James L. Jones	Affirmative	
1	Southwestern Power Administration	Mike Wech	Affirmative	
1	Tennessee Valley Authority	Larry Akens	Negative	
1	Westar Energy	Allen Klassen	Affirmative	
1	Western Area Power Administration	Robert Temple	Affirmative	
1	Xcel Energy, Inc.	Gregory L. Pieper	Affirmative	
2	Alberta Electric System Operator	Anita Lee	Affirmative	
2	British Columbia Transmission Corporation	Phil Park	Affirmative	
2	California ISO	David Hawkins	Affirmative	
2	Electric Reliability Council of Texas, Inc.	Roy D. McCoy		
2	Independent Electricity System Operator	Kim Warren	Negative	View
2	ISO New England, Inc.	Kathleen Goodman	Affirmative	
2	Midwest ISO, Inc.	Terry Bilke	Affirmative	View
2	New Brunswick System Operator	Alden Briggs	Affirmative	
2	New York Independent System Operator	Gregory Campoli	Affirmative	
2	PJM Interconnection, L.L.C.	Tom Bowe	Negative	View
3	Alabama Power Company	Robin Hurst	Negative	View

3	Ameren Services	Mark Peters	Affirmative	View
3	American Electric Power	Raj Rana	Affirmative	
3	Arizona Public Service Co.	Thomas R. Glock	Affirmative	
3	Atlantic City Electric Company	James V. Petrella	Affirmative	
3	Avista Corp.	Robert Lafferty		
3	BC Hydro and Power Authority	Pat G. Harrington	Abstain	
3	Bonneville Power Administration	Rebecca Berdahl	Affirmative	View
3	City of Tallahassee	Rusty S. Foster		
3	Commonwealth Edison Co.	Stephen Lesniak	Affirmative	
3	Consolidated Edison Co. of New York	Peter T Yost	Affirmative	
3	Delmarva Power & Light Co.	Michael R. Mayer	Affirmative	
3	Dominion Resources, Inc.	Jalal (John) Babik	Negative	View
3	Duke Energy Carolina	Henry Ernst-Jr	Affirmative	
3	Entergy Services, Inc.	Matt Wolf	Affirmative	
3	FirstEnergy Solutions	Joanne Kathleen Borrell	Affirmative	View
3	Florida Power & Light Co.	W. R. Schoneck	Negative	
3	Florida Power Corporation	Lee Schuster	Affirmative	
3	Georgia Power Company	Leslie Sibert	Negative	View
3	Grays Harbor PUD	Wesley W Gray		
3	Great River Energy	Sam Kokkinen	Affirmative	
3	Gulf Power Company	Gwen S Frazier	Negative	View
3	Hydro One Networks, Inc.	Michael D. Penstone	Affirmative	View
3	JEA	Garry Baker	Affirmative	
3	Kissimmee Utility Authority	Gregory David Woessner	Affirmative	
3	Lakeland Electric	Mace Hunter	Affirmative	
3	Lincoln Electric System	Bruce Merrill	Affirmative	
3	Louisville Gas and Electric Co.	Charles A. Freibert	Affirmative	
3	Manitoba Hydro	Ronald Dacombe	Affirmative	
3	MidAmerican Energy Co.	Thomas C. Mielnik	Affirmative	
3	Mississippi Power	Don Horsley	Negative	View
3	Municipal Electric Authority of Georgia	Steven M. Jackson		
3	New York Power Authority	Michael Lupo	Affirmative	
3	Niagara Mohawk (National Grid Company)	Michael Schiavone	Affirmative	
3	Northern Indiana Public Service Co.	William SeDoris	Negative	View
3	Orlando Utilities Commission	Ballard Keith Mutters	Affirmative	
3	OTP Wholesale Marketing	Bradley Tollerson		
3	PECO Energy an Exelon Co.	John J. McCawley	Affirmative	
3	Platte River Power Authority	Terry L Baker	Affirmative	
3	Potomac Electric Power Co.	Robert Reuter	Affirmative	
3	Progress Energy Carolinas	Sam Waters	Affirmative	
3	Public Service Electric and Gas Co.	Jeffrey Mueller	Affirmative	
3	Public Utility District No. 1 of Chelan County	Kenneth R. Johnson	Affirmative	
3	Public Utility District No. 2 of Grant County	Greg Lange		
3	Salt River Project	John T. Underhill	Affirmative	
3	San Diego Gas & Electric	Scott Peterson	Negative	View
3	Santee Cooper	Zack Dusenbury	Negative	View
3	Seattle City Light	Dana Wheelock	Affirmative	
3	Wisconsin Electric Power Marketing	James R. Keller	Affirmative	
3	Wisconsin Public Service Corp.	James Maenner		
3	Xcel Energy, Inc.	Michael Ibold	Affirmative	
4	Alliant Energy Corp. Services, Inc.	Kenneth Goldsmith	Affirmative	
4	American Municipal Power - Ohio	Chris Norton	Negative	
4	Consumers Energy	David Frank Ronk	Negative	View
4	Detroit Edison Company	Daniel Herring	Affirmative	
4	Florida Municipal Power Agency	Thomas Reedy	Affirmative	
4	LaGen	Richard Comeaux	Abstain	
4	Madison Gas and Electric Co.	Joseph G. DePoorter	Affirmative	
4	Northern California Power Agency	Fred E. Young	Affirmative	
4	Ohio Edison Company	Douglas Hohlbaugh	Affirmative	View
4	Public Utility District No. 1 of Douglas County	Henry E. LuBean	Affirmative	
4	Seattle City Light	Hao Li	Affirmative	
4	Seminole Electric Cooperative, Inc.	Steven R. Wallace	Affirmative	
4	Wisconsin Energy Corp.	Anthony Jankowski		
5	AEP Service Corp.	Brock Ondayko	Affirmative	
5	Alabama Electric Coop. Inc.	Tim Hattaway	Negative	
5	Amerenue	Sam Dwyer	Affirmative	View
5	Avista Corp.	Edward F. Groce		

5	Bonneville Power Administration	Francis J. Halpin	Affirmative	View
5	City of Tallahassee	Alan Gale	Affirmative	View
5	City Water, Light & Power of Springfield	Karl E. Kohlrus	Affirmative	
5	Cleco Power LLC	Grant Bryant	Affirmative	
5	Colmac Clarion/Piney Creek LP	Harvie D. Beavers	Affirmative	
5	Conectiv Energy Supply, Inc.	Richard K. Douglass	Affirmative	
5	Constellation Generation Group	Michael F. Gildea	Affirmative	
5	Consumers Energy	James B Lewis	Negative	View
5	Dairyland Power Coop.	Warren Schaefer	Affirmative	
5	Detroit Edison Company	Ronald W. Bauer	Affirmative	
5	Dominion Resources, Inc.	Mike Garton	Negative	View
5	Dynegy	Greg Mason	Affirmative	
5	Entergy Corporation	Stanley M Jaskot		
5	Exelon Nuclear	Michael Korchynsky	Affirmative	
5	FirstEnergy Solutions	Kenneth Dresner	Affirmative	View
5	Great River Energy	Cynthia E Sulzer	Affirmative	
5	JEA	Donald Gilbert	Affirmative	
5	Lincoln Electric System	Dennis Florom	Affirmative	
5	Louisville Gas and Electric Co.	Charlie Martin	Affirmative	
5	Manitoba Hydro	Mark Aikens	Affirmative	
5	Municipal Electric Authority of Georgia	Roger Brand		
5	New York Power Authority	Gerald Mannarino	Affirmative	
5	Northern Indiana Public Service Co.	Michael K Wilkerson		
5	Northern States Power Co.	Liam Noailles	Affirmative	
5	Orlando Utilities Commission	Richard Kinas	Affirmative	
5	PPL Generation LLC	Mark A. Heimbach	Negative	View
5	Progress Energy Carolinas	Wayne Lewis	Affirmative	View
5	PSEG Power LLC	Thomas Piascik	Affirmative	
5	Reedy Creek Energy Services	Bernie Budnik		
5	Reliant Energy Services	Thomas J. Bradish	Affirmative	
5	Salt River Project	Glen Reeves	Affirmative	
5	Seminole Electric Cooperative, Inc.	Brenda K. Atkins	Affirmative	
5	South Mississippi Electric Power Association	Jerry W Johnson	Negative	
5	Southern California Edison Co.	David Schiada	Affirmative	
5	Southern Company Services, Inc.	Roger D. Green	Negative	View
5	U.S. Army Corps of Engineers Northwestern Division	Karl Bryan	Affirmative	
5	U.S. Bureau of Reclamation	Martin Bauer	Abstain	
5	Wisconsin Electric Power Co.	Linda Horn	Affirmative	
6	AEP Marketing	Edward P. Cox	Affirmative	
6	Ameren Energy Marketing Co.	Jennifer Richardson	Affirmative	
6	Bonneville Power Administration	Brenda S. Anderson	Affirmative	View
6	Consolidated Edison Co. of New York	Nickesha P Carrol	Affirmative	
6	Dominion Resources, Inc.	Louis S Slade	Negative	View
6	Duke Energy Carolina	Walter Yeager	Affirmative	
6	Entergy Services, Inc.	William Franklin	Affirmative	
6	Eugene Water & Electric Board	Daniel Mark Bedbury	Affirmative	
6	Exelon Power Team	Pulin Shah		
6	FirstEnergy Solutions	Mark S Travaglianti	Affirmative	View
6	Florida Municipal Power Agency	Robert C. Williams	Affirmative	
6	Great River Energy	Donna Stephenson		
6	Lincoln Electric System	Eric Ruskamp	Affirmative	
6	Louisville Gas and Electric Co.	Daryn Barker	Affirmative	
6	Manitoba Hydro	Daniel Prowse	Affirmative	
6	New York Power Authority	Thomas Papadopoulos	Affirmative	
6	PP&L, Inc.	Thomas Hyzinski	Negative	
6	Progress Energy	James Eckelkamp	Affirmative	
6	PSEG Energy Resources & Trade LLC	James D. Hebson	Affirmative	
6	Public Utility District No. 1 of Chelan County	Hugh A. Owen	Abstain	
6	Salt River Project	Mike Hummel	Affirmative	
6	Santee Cooper	Suzanne Ritter	Negative	View
6	Seminole Electric Cooperative, Inc.	Trudy S. Novak	Affirmative	
6	Southern California Edison Co.	Marcus V Lotto	Affirmative	
6	Southern Indiana Gas and Electric Co.	Brad Lisembee	Negative	
6	Western Area Power Administration - UGP Marketing	John Stonebarger	Affirmative	
6	Xcel Energy, Inc.	David F. Lemmons	Affirmative	

8	JDRJC Associates	Jim D. Cyrulewski	Affirmative	
8	Volkmann Consulting, Inc.	Terry Volkmann	Affirmative	
9	California Energy Commission	William Mitchell Chamberlain	Affirmative	
9	Commonwealth of Massachusetts Department of Public Utilities	Donald E. Nelson	Affirmative	
9	Oregon Public Utility Commission	Jerome Murray	Affirmative	
9	Public Service Commission of South Carolina	Philip Riley	Affirmative	
9	Public Utilities Commission of Ohio	Klaus Lambeck	Affirmative	
9	Utah Public Service Commission	Ric Campbell	Affirmative	
10	Electric Reliability Council of Texas, Inc.	Kent Saathoff	Negative	View
10	Florida Reliability Coordinating Council	Linda Campbell	Affirmative	
10	Midwest Reliability Organization	Larry Brusseau	Affirmative	
10	New York State Reliability Council	Alan Adamson	Affirmative	
10	Northeast Power Coordinating Council, Inc.	Guy Zito	Affirmative	
10	ReliabilityFirst Corporation	Jacquie Smith		
10	SERC Reliability Corporation	Carter B. Edge	Negative	View
10	Southwest Power Pool	Charles H. Yeung	Affirmative	
10	Western Electricity Coordinating Council	Louise McCarren		

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consideration of Comments on Initial Ballot — PER-005-1 — System Personnel Training (Project 2006-01)

Summary Consideration: The majority of negative voters expressed concerns surrounding the two (2) year implementation time frame, the treatment of existing training programs and the mandating of the use of simulators. The SDT explained that FERC had expressed concerns with a longer implementation period since the need for improvements to System Operator training was initially identified in the 2003 Blackout Report and that an entity would conceivably have more time than two (2) years to implement the program. Concerning the treatment of existing training programs, the SDT explained that existing training programs would have to be verified against the Standard to ensure compliance with the use of a systematic approach to training. The SDT also explained that the use of a simulator was directed by a FERC Order and that the SDT had expanded the concept of using a simulator to include simulation technology, virtual technology or other technology that replicates the operational behavior of the BES to increase flexibility for an organization to meet the requirement of the standard using the most cost effective solution. The SDT further explained that it proposed the following language as delineating factors for determining those entities that must use simulation technology in their training programs.
". . . that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations. . ."

The above language was proposed as an alternative that is an, equally efficient and effective method of achieving the intent of FERC's directive to include "the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation."

A few of the negative voters are concerned with the definition of the twelve (12) month period for emergency training, the use of a systematic approach to training and that the standard uses a "how-to" approach. With regards to defining the twelve (12) month period for emergency operations training, the SDT explained that it was allowing an entity the flexibility to define this period on a case-by-case basis. The SDT further explained that by allowing an entity this flexibility it was providing for the situation of a new hire late in the calendar year. Concerning the use of a systematic approach to training, the SDT explained this was based on the industry approved SAR requiring that a systematic approach to training be applied to all reliability-related system operator training. The SDT further explained that the requirement to use a systematic approach to training was reinforced as a directive from FERC Order 693. With regards to the concern that the standard uses a "how-to" approach, the SDT explained that the Reliability Standards Development Procedure Version 6.1 stated that "Each requirement identifies who is responsible and what action is to be performed or what outcome is to be achieved.", therefore allowing requirements to be developed utilizing the "how – to approach".

Voter	Entity	Segment	Vote	Comment
John Bussman	Associated Electric Cooperative, Inc.	1	Negative	PER-002 provides adequate requirements for training to ensure that a system operator is competent to perform the system operator duties.
Response: The need for improvements to system operator training was identified in the 2003 Black-out Report. Based on this report the SAR was developed and approved by the industry to improve system operator training practices. Lastly, FERC Order 693 expanded the training requirement through directives for modifications to the PER-002 standard.				
Tony Kroskey	Brazos Electric Power	1	Negative	It is not clear to what extent jurisdiction and regulatory requirements can apply.

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	Cooperative, Inc.			
Response: The SPT SDT was unsure of the exact nature of your question. If you are concerned about the applicability of this standard to your organization, please refer to the NERC Functional Model and the Statement of Compliance Registry Criteria. These documents provide the current functional type definitions needed by NERC to fulfill its obligation as the Electric Reliability Organization to identify and register all entities that meet the criteria for inclusion in the compliance registry. If your concern is related to regulatory jurisdiction, consult with your legal department.				
Paul Rocha	CenterPoint Energy	1	Negative	Regarding the SDT's Consideration of Comments to the 4th Draft, CenterPoint Energy appreciates that in R3.1 "the SDT is not mandating a minimum number of hours that an entity must train on a simulator"; however, as CenterPoint Energy stated in its comments, the current wording in the standard can still be interpreted such that ALL 32 hours of emergency operations training must be accomplished using simulation technology. Consequently, CenterPoint Energy is voting "negative". CenterPoint Energy again submits the following minor edit, which would clarify R3.1: Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using [delete "using" and insert instead "including the use of"] simulation technology such as a simulator, virtual technology or other technology that replicates the operation behavior of the BES during normal emergency conditions.
Response: Based on industry comments, the SPT SDT feels the present wording provides sufficient clarity to the requirement.				
Joseph Dobes	Northern Indiana Public Service Co.	1	Negative	The existing 3-year program has been vetted throughout the industry and is adequate. Changing the requirement to 2 years would require additional staff.
Response: If you are referring to the 3 year operator re-certification program, this is outside the scope of the industry approved SAR. If you are referring to the 24 month implementation period, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training. Industry consensus and the SPT SDT support a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • NERC filing of BOT approved standard with FERC			

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Ray Mammarella	PP&L, Inc.	1	Negative	Systematic approach to training, while a valid training process is not without its shortcomings, or the only acceptable method to develop training. This is especially true in the area of just-in-time training. Mandating a training development process is not conducive to a reliability standard, and would be difficult to monitor for compliance. The standard as written mandates a "How-to" approach which is not within scope of a reliability standard. This standard would divert the already scarce training resources away from training operators to the administrative work of documenting every step of the training process to ensure compliance with the standard. It could have the unintended consequence of actually reducing the number of training hours the operators receive. Ultimately, training effectiveness will be measured by compliance with existing reliability standards.
Response: This standard is based on the approved SAR and requires that a systematic approach to training be applied to all system operator training for reliability-related tasks. The requirement to use a systematic approach to training was reinforced as a directive from FERC in Order 693. In addition, there are multiple variations of a systematic approach to training and this standard is not prescribing the use of any specific systematic approach to training methodology. The Reference Document associated with this standard contains links to various systematic approach to training methodologies. Reliability Standards Development Procedure Version 6.1 states that “Each requirement identifies who is responsible and what action is to be performed or what outcome is to be achieved.”, therefore allowing requirements to be developed utilizing the “how – to approach”.				

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Mark A. Heimbach	PPL Generation LLC	5	Negative	Systematic approach to training, while a valid training process is not without its shortcomings, or the only acceptable method to develop training. This is especially true in the area of just-in-time training. Mandating a training development process is not conducive to a reliability standard, and would be difficult to monitor for compliance. The standard as written mandates a "How-to" approach which is not within scope of a reliability standard. This standard would divert the already scarce training resources away from training operators to the administrative work of documenting every step of the training process to ensure compliance with the standard. It could have the unintended consequence of actually reducing the number of training hours the operators receive. Ultimately, training effectiveness will be measured by compliance with existing reliability standards.
Response: This standard is based on the approved SAR and requires that a systematic approach to training be applied to all system operator training for reliability-related tasks. The requirement to use a systematic approach to training was reinforced as a directive from FERC Order 693. In addition, there are multiple variations of a systematic approach to training and this standard is not prescribing the use of any specific systematic approach to training methodology. The Reference Document associated with this standard contains links to various systematic approach to training methodologies. Reliability Standards Development Procedure Version 6.1 states that “Each requirement identifies who is responsible and what action is to be performed or what outcome is to be achieved.”, therefore allowing requirements to be developed utilizing the “how – to approach”.				
Catherine Koch	Puget Sound Energy, Inc.	1	Negative	The term "verify" needs further clarification to understand whether the regional compliance enforcement or FERC based on the Order 693 directive would expect verification to be obtained via simulator results. M2 does not mention the term simulator when discussing evidence examples and it is clear the expectation for use of a simulator per R3.1, but the vagueness of "verify" in R2 and R2.1 and the FERC focus on simulator use is cause for concern when audited. In addition it is unclear what extent of "modification" needs to drive the verification on the modified task within 6 months. Training schedules can be tricky to achieve and having to insert training relative to something considered to be minor could be difficult to arrange depending on the expectation of "verify" again. Please confirm that the use of a simulator for training is not required in any requirement but R3.1. The mandate of simulator use in R3.1 based on identified operational

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				authority or control over facilities with established IROLs is a concern because it is unclear how the WECC region would interpret this based on discussions of IROL versus SOLs. We request clarity regarding how the WECC region would interpret this. What WECC document points to the entities that this is applicable to? Is this identified by the Major WECC Transfer Paths in the BES table? We appreciate the difficulty in determine how to define simulator required entities and appreciate the efforts to narrow the applicability to those entities that have the greatest impact on the BES.
Response: A simulator may be used to verify competency, however, it is not required. Each entity shall determine its own process for compliance with the standard. With respect to your comment concerning the use of IROL as a delineating factor for determining the need for using simulation technologies, the SDT continues to stress it is not just IROLs but also "...or has established operating guides or protection systems to mitigate IROL violations." If further clarification about the implementation and applicability for this Requirement is needed with respect to specific documentation that may exist within WECC, please contact WECC.				
Terry L. Blackwell (1) Zack Dusenbury (3) Suzanne Ritter (6)	Santee Cooper	1,3,6	Negative	It's not feasible to implement R1 and R2 in 24 months with available operator time for identification and required verification of job tasks.
Response: FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training. Industry consensus and the SPT SDT support a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • NERC filing of BOT approved standard with FERC • FERC staff review for development of NOPR • NOPR comment period • FERC staff review of NOPR comments • FERC issuing of final rule				

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• Publish in Federal Register • 24 months after the first day of the first calendar quarter following regulatory approval				
Horace Stephen Williamson	Southern Company Services, Inc.	1	Negative	The Standard Drafting Team did not follow through with the suggestion for the effective date to be 36 months for both standards. Additionally, industry needs clear direction on existing training programs. The proposed standard does not provide guidance in determining what constitutes “a company-specific” reliability-related task. Consequently, it is subjective. The task list should, at a minimum, fully support the function type definition contained in the NERC Statement of Compliance Registry Criteria. We disagree with mandating the use of a training simulator. The purchase, model maintenance and operation of a simulator can be a financial burden on a smaller entity with an IROL Finally, we still have concerns that auditors will consistently disagree with the composition of an entity’s reliability related task list.
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Roger D. Green	Southern Company Services, Inc.	5	Negative	The effective date should be 36 months for this standard. Additionally, industry needs clear direction on existing training programs. The proposed standard does not provide guidance in determining what constitutes “a company-specific” reliability-related task. Consequently, it is subjective. The task list should, at a minimum, fully support the function type definition contained in the NERC Statement of Compliance Registry Criteria. We disagree with mandating the use of a training simulator. Finally, we still have concerns that auditors will consistently disagree with the composition of an entity’s reliability related task list.
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Robin Hurst	Alabama Power Company	3	Negative	The Standard Drafting Team did not follow through with the suggestion for the effective date to be 36 months for both standards. Additionally, industry needs clear direction on existing training programs. The proposed standard does not provide guidance in determining what constitutes “a company-specific” reliability-related task. Consequently, it is subjective. The task list should, at a minimum, fully support the function type definition contained in the NERC Statement of Compliance Registry Criteria. We disagree with mandating the use of a training simulator. The purchase, model maintenance and operation of a simulator can be a financial burden on a smaller entity with an IROL Finally, we still have concerns that auditors will consistently disagree with the composition of an entity’s reliability related task list.

Response: FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.

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Leslie Sibert	Georgia Power Company	3	Negative	The Standard Drafting Team did not follow through with the suggestion for the effective date to be 36 months for both standards. Additionally, industry needs clear direction on existing training programs. The proposed standard does not provide guidance in determining what constitutes “a company-specific” reliability-related task. Consequently, it is subjective. The task list should, at a minimum, fully support the function type definition contained in the NERC Statement of Compliance Registry Criteria. We disagree with mandating the use of a training simulator. The purchase, model maintenance and operation of a simulator can be a financial burden on a smaller entity with an IROL Finally, we still have concerns that auditors will consistently disagree with the composition of an entity’s reliability related task list.
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Gwen S Frazier	Gulf Power Company	3	Negative	The Standard Drafting Team did not follow through with the suggestion for the effective date to be 36 months for both standards. Additionally, industry needs clear direction on existing training programs. The proposed standard does not provide guidance in determining what constitutes “a company-specific” reliability-related task. Consequently, it is subjective. The task list should, at a minimum, fully support the function type definition contained in the NERC Statement of Compliance Registry Criteria. We disagree with mandating the use of a training simulator. The purchase, model maintenance and operation of a simulator can be a financial burden on a smaller entity with an IROL Finally, we still have concerns that auditors will consistently disagree with the composition of an entity’s reliability related task list.
Response: FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training. Industry consensus and the SPT SDT support a 24 month implementation period. The industry should have adequate time to begin preparation				

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Don Horsley	Mississippi Power	3	Negative	The Standard Drafting Team did not follow through with the suggestion for the effective date to be 36 months for both standards. Additionally, industry needs clear direction on existing training programs. The proposed standard does not provide guidance in determining what constitutes “a company-specific” reliability-related task. Consequently, it is subjective. The task list should, at a minimum, fully support the function type definition contained in the NERC Statement of Compliance Registry Criteria. We disagree with mandating the use of a training simulator. The purchase, model maintenance and operation of a simulator can be a financial burden on a smaller entity with an IROL Finally, we still have concerns that auditors will consistently disagree with the composition of an entity’s reliability related task list.

Response: FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.

Industry consensus and the SPT SDT support a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada):

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Existing training programs need to be verified against the standard for compliance.

The System Operator Task List was removed from the standard based on industry comments received from previous postings. The Reference Document associated with the Standard details some topics that could be considered and included in a task list. The SDT agrees that the NERC

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Kim Warren	Independent Electricity System Operator	2	Negative	The IESO maintains that Requirement 3.1 is overly prescriptive on how to accomplish training. The objective of NERC standards should be to define what needs to be done to ensure the reliability of the BES - in this case to ensure the RC, TOP and BA develop and implement a training program for its System Operators to deal with normal and emergency situations. How to achieve this training to meet the needed competency level should be left to the responsible entity. The effectiveness of the methods employed by the entity will then be evaluated through the NERC Operator Certification exercise. Further, the IESO wishes to know whether the "simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES" may be "generic" in nature, intended to develop and assess the general competencies required of System Operators, or must it be specific to the BES of the BA, RC, or TOP and mimic the behavior of their BES, providing realistic experiences with the operator's actual BES. It is unclear from a compliance perspective, what is intended by “virtual technology, or other technology”. We strongly believe that robust “simulation practices” achieve as much or more than “simulation technologies” and feel that if the standard does prescribe “how”, then the former element, “simulation practices”, needs to be included.
Response: Reliability Standards Development Procedure Version 6.1 states that “Each requirement identifies who is responsible and what action is to be performed or what outcome is to be achieved.”, therefore allowing requirements to be developed utilizing the “how – to approach”.				

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The NERC Operator Certification is outside the scope of the industry approved SAR used to develop this standard. Certification does not verify that a system operator can perform company-specific reliability-related tasks. The intent of the standard is to allow for simulation training that replicates the operational behavior of the BES during normal and emergency conditions. The SPT SDT believes the standard as developed achieves the reliability goals and allows an applicable entity the flexibility to comply using the most cost effective method available. The Reference Document associated with this standard provides additional information concerning simulation technology.				
Tom Bowe	PJM Interconnection, L.L.C.	2	Negative	PJM believes that SAT, while a valid training process is not without its shortcomings or the only acceptable method to develop training. This is especially true in the area of just-in-time training. Mandating a training development process is not conducive to a reliability standard, and would be difficult to monitor for compliance. The standard as written mandates a "How-to" approach which is not within the scope of a reliability standard. This standard would divert already scarce training resources away from training operators to the administrative work of documenting every step of the training process to ensure compliance with the standard. It could have the unintended consequence of actually reducing the number of training hours that operators receive. Ultimately, training effectiveness will be measured by compliance with existing reliability standards. That being said, the objective is to ensure qualified system operators. PJM supports the parallel implementation of hourly training requirements for continuing education as well as initial training. NERC has a Continuing Education Program that ensures high quality training, and sets forth a structure using Continuing Education Hours (CEHs) for "NERC Certified Operators". While NERC has continually stated that the CEH program is separate from the standards, little justification has been provided for this separation. Thus, redundant and possibly conflicting training requirements are being proposed. Utilizing the CEH approach, PJM would support the increase of the training time required under R3 to at least 100 CEHs annually with category breakdown (i.e. simulation,

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				standards, EOP) as specified in the NERC Certification program. PJM also proposes that for new operators, R2 be replaced with a fixed training hour requirement that is broken down into specific areas (such as job assignments, NERC Standards, tools, internal procedures, etc.). This initial training requirement would be analogous to the CEH program for existing operators, but focused on specific categories related to the initial requirements of the job.
Response: This standard is based on the approved SAR and requires that a systematic approach to training be applied to all system operator training for reliability-related tasks. The requirement to use a systematic approach to training was reinforced as a directive from FERC Order 693. In addition, there are multiple variations of a systematic approach to training and this standard is not prescribing the use of any specific systematic approach to training methodology. The Reference Document associated with this standard contains links to various systematic approach to training methodologies. Reliability Standards Development Procedure Version 6.1 states that "Each requirement identifies who is responsible and what action is to be performed or what outcome is to be achieved.", therefore allowing requirements to be developed utilizing the "how – to approach". The NERC Certification Process or NERC Continuing Education (CE) Program is not within the scope of this standard. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., addresses company specific reliability-related tasks). Additionally, the industry is in support of the standard as presently written.				
Jalal (John) Babik (3) Mike Garton (5) Louis S Slade (6)	Dominion Resources, Inc.	3,5,6	Negative	In support of PJM comments
Response: This standard is based on the approved SAR and requires that a systematic approach to training be applied to all system operator training for reliability-related tasks. The requirement to use a systematic approach to training was reinforced as a directive from FERC Order 693. In addition, there are multiple variations of a systematic approach to training and this standard is not prescribing the use of any specific systematic approach to training methodology. The Reference Document associated with this standard contains links to various systematic approach to training methodologies. Reliability Standards Development Procedure Version 6.1 states that "Each requirement identifies who is responsible and what action is to be performed or what outcome is to be achieved.", therefore allowing requirements to be developed utilizing the "how – to approach". The NERC Certification Process or NERC Continuing Education (CE) Program is not within the scope of this standard. An entity can use the CE Program to meet this standard if the CE training meets the requirements in this standard (i.e., addresses company specific reliability-related tasks). Additionally, the industry is in support of the standard as presently written.				

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William SeDoris	Northern Indiana Public Service Co.	3	Negative	Concern is with the 2-year window.
Response: If you are referring to the 24 month implementation period, FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training. Industry consensus and the SPT SDT support a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • NERC filing of BOT approved standard with FERC • FERC staff review for development of NOPR • NOPR comment period • FERC staff review of NOPR comments • FERC issuing of final rule • Publish in Federal Register • 24 months after the first day of the first calendar quarter following regulatory approval				
Scott Peterson	San Diego Gas & Electric	3	Negative	R2.1. Should be clarified to read "Within six months of a modification of the list of the BES company-specific reliability-related tasks, ...". R3. The 12 month timeframe is unworkable. It will force workgroups to go to a shorter timeframe just to make sure they stay within that 12 months. This will cause training to be moved up each year after year. Change to "At least every 16 months, each ...". R3.1. The drafting team needs to clarify how "operational authority and control" will be interpreted in this standard. For example, if a transmission operator has turned over operational control of its system to an ISO, yet that transmission operator still has the physical control device in its control center which it utilizes under the ISO's direction, is that transmission operator subject to this requirement?
Response: The industry has responded in support of the standard as presently written therefore the SDT does not feel that the modification you are suggesting to Requirement R2.1 is necessary or provides any additional clarity.				

Voter	Entity	Segment	Vote	Comment
The SPT SDT did not intend to define the 12 month period for providing emergency operations training. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from "annually" to "every 12 months" to allow for the situation of new hires late in the calendar year. The issue of addressing relationships related to "operational authority *or* control" between entities is outside the scope of the industry approved SAR. If you are concerned about the applicability of this standard to your organization, please refer to the NERC Functional Model and the Statement of Compliance Registry Criteria.				
David Frank Ronk	Consumers Energy	4	Negative	This standard would require a complete re-structuring of training programs across the industry. Training programs that have ramped up as a result of the black-out in 2003 and that have been deemed compliant up to the possible passing of this standard. This standard is too restrictive and burdensome. a Training staff of one would need to become a training staff of three just to attempt to install a systematic program described in this standard and it would still take longer than the two years mentioned in the standard.
Response: Existing training programs need to be verified against the standard for compliance. Industry consensus and the SPT SDT support a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • NERC filing of BOT approved standard with FERC • FERC staff review for development of NOPR • NOPR comment period • FERC staff review of NOPR comments • FERC issuing of final rule • Publish in Federal Register • 24 months after the first day of the first calendar quarter following regulatory approval				

Voter	Entity	Segment	Vote	Comment
James B Lewis	Consumers Energy	5	Negative	In our view, the proposed Standard is too restrictive and much too burdensome. Our training staff might need to triple to install a program such as that proposed. Even with a greatly increased training staff, we believe it would take much longer than the two years mentioned in the proposed Standard. Our training program was improved after the August 2003 blackout and has been deemed compliant, but we don't believe it would be should this proposed Standard pass.
Response: Existing training programs need to be verified against the standard for compliance. Industry consensus and the SPT SDT support a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada): • NERC filing of BOT approved standard with FERC • FERC staff review for development of NOPR • NOPR comment period • FERC staff review of NOPR comments • FERC issuing of final rule • Publish in Federal Register • 24 months after the first day of the first calendar quarter following regulatory approval				
Kent Saathoff	Electric Reliability Council of Texas, Inc.	10	Negative	R1.1 and R1.2 require training based on a "task list". A training needs analysis under a systematic approach to training (R1), coupled with verification of capability (R2) may determine that only certain tasks need training. R3 would be more useful in the System Operator Certification Program manual, Section 2, Credential Maintenance as a subset of the Operating Topics requirement similar to the Standards and Simulations. A 90 hour requirement (averaging 30 hours/year over the 3-year certification) would be more preferable than a more rigid 32 hours every twelve months. Providing 32 hours of training in April of one year and in May the next would be a violation of this requirement

Voter	Entity	Segment	Vote	Comment
				as written.
Response: Existing training programs need to be verified against the standard for compliance. The NERC Certification Process or NERC Continuing Education (CE) Program is not a within the scope of this standard. Additionally, the industry has responded in support of the standard as presently written. The SPT SDT did not intend to define the 12 month period for providing emergency operations training. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from "annually" to "every 12 months" to allow for the situation of new hires late in the calendar year.				
Carter B. Edge	SERC Reliability Corporation	10	Negative	In order to vote "yes", I would need to see the following changes to the standard: Change the training program implementation period back to 36 months (as it was in a previous draft). Provide clear direction on how responsible entities can incorporate their existing training materials into the established "training program" and still be compliant with R1. Provide a suggested (not prescriptive) list of generic tasks that could be used as a starting point to create the list of BES company-specific reliability-related tasks required by R1.1. This task list would be located in the Reference Document (as opposed to the standard itself) to give the flexibility to modify, add or remove tasks to suit the specific system. Remove R3.1 mandating the use of simulators, or limit the mandated use of simulators to RCs that have established IROLs in their coordinating footprint. Revise R3 to allow every responsible entity the flexibility to meet its emergency operations training requirement using any or all of the following types of training: drills, exercises, classes, hands-on or table-top simulation.

Voter	Entity	Segment	Vote	Comment

Response: FERC has expressed concerns regarding the implementation time frame of this standard since the need for improvements to system operator training was identified in the 2003 Black-out Report and FERC Order 693 directives to establish the criteria for system operator training.

Industry consensus and the SPT SDT support a 24 month implementation period. The industry should have adequate time to begin preparation to implement Requirement 1 and Requirement 2 of this standard based on the following typical process (with the exception of Canada):

- NERC filing of BOT approved standard with FERC
- FERC staff review for development of NOPR
- NOPR comment period
- FERC staff review of NOPR comments
- FERC issuing of final rule
- Publish in Federal Register
- 24 months after the first day of the first calendar quarter following regulatory approval

Existing training programs need to be verified against the standard for compliance.

The System Operator Task List was removed from the standard based on industry comments received from previous postings. The Reference Document associated with the Standard details some topics that could be considered and included in a task list. The SDT agrees that the NERC Functional Model and the Statement of Compliance Registry Criteria provide the current functional type definitions to develop its list of BES company-specific reliability-related tasks.

The SPT SDT is responding to directives included in FERC Order 693. Order 693 includes a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. The SDT provided an alternative approach of using simulation technology such as a simulator, virtual technology or other technology.

In addition, the SDT used IROLs as a delineating criterion for those entities that must provide emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

The SPT SDT believes that Requirement R3 as written allows the applicable entity the flexibility to comply using various training methodologies.

Voter	Entity	Segment	Vote	Comment
Kirit S. Shah (1) Mark Peters (3)	Ameren Services	1,3	Affirmative	We have voted affirmatively; however, we recommend that the drafting team carefully consider the following comments: For the Standard PER-004-2 : (1) The purpose of this standard is to address staffing. The requirement R2 in no way addresses staffing. Therefore, it should be eliminated from this standard and moved to the appropriate IRO standard. If R2 is about training on SOLs and IROLs, then it should specifically state that. (2) This standard does not have any measures. How can there be a reliability standard without any measures? For the Standard PER-005-1: (1) Add the words "review and" in R1.1.1 to read "Each RC, BA, and TOP shall review and update its list of … (2) Requirement R1.3 should specify when/how often the training should be delivered and to whom (Operators? Senior management?) (3) The numbering of Measures should match the Requirement numbering. For example M1 for R1 and M1.1.2 for R1.1.2 etc. If there are no measures (why not, as we questioned earlier) then state "No measure" alongside to maintain the matching numbering system between Measures and Requirements.

Response: Thank you for your affirmative response and your clarifying remarks.

PER-004-2 Requirement R2 and its applicable measures are not a within the scope of this standard. The SDT encourages you to submit a SAR to modify PER-004-2 through the Standards Development Process.

The SPT SDT believes that in order to update a task list it first must be reviewed. Therefore the SPT SDT does not feel that a change in the wording is necessary and is not supported by the industry.

As stated in the purpose statement of the standard and in Requirement 1 (and associated sub-requirements) this standard applies to System Operators.

Voter	Entity	Segment	Vote	Comment
The SPT SDT incorporated the sub-requirement measures (where not specifically stated) into the measures for the Requirement.				
Sam Dwyer	Amerenue	5	Affirmative	We have voted affirmatively; however, we recommend that the drafting team carefully consider the following comments: For the Standard PER-004-2 : (1) The purpose of this standard is to address staffing. The requirement R2 in no way addresses staffing. Therefore, it should be eliminated from this standard and moved to the appropriate IRO standard. If R2 is about training on SOLs and IROLs, then it should specifically state that. (2) This standard does not have any measures. How can there be a reliability standard without any measures? For the Standard PER-005-1 : (1) Add the words "review and" in R1.1.1 to read "Each RC, BA, and TOP shall review and update its list of ... (2) Requirement R1.3 should specify when/how often the training should be delivered and to whom (Operators? senior management?) (3) The numbering of Measures should match the Requirement numbering. For example M1 for R1 and M1.1.2 for R1.1.2 etc. If there are no measures (why not, as we questioned earlier) then state "No measure" alongside to maintain the matching numbering system between Measures and Requirements.
Response: Thank you for your affirmative response and your clarifying remarks. PER-004-2 Requirement R2 and its applicable measures are not a within the scope of this standard. The SDT encourages you to submit a SAR to modify PER-004-2 through the Standards Development Process. The SPT SDT believes that in order to update a task list it first must be reviewed. Therefore the SPT SDT does not feel that a change in the wording is necessary and is not supported by the industry.				

Voter	Entity	Segment	Vote	Comment
As stated in the purpose statement of the standard and in Requirement 1 (and associated sub-requirements) this standard applies to System Operators. The SPT SDT incorporated the sub-requirement measures (where not specifically stated) into the measures for the Requirement.				
Jason Shaver	American Transmission Company, LLC	1	Affirmative	After reviewing the VRF's and VSLs it's our opinion that the proposed VRFs and VSLs may not pass FERC approval. FERC recently posted a NOPR on FAC-010, FAC-011 and FAC-014 in which they made specific observations. (Docket No. RM08-11-000 Issued October 16th) Paragraph 18 of the above mentioned order: (VRF) "..NERC will assign a violation risk factor for each requirement of a Reliability Standard that relates to the expected or potential impact of a violation of the requirement on the reliability of the Bulk Power System." The SDT has not assigned VRF's to sub-requirements. Paragraph 20 of the above mentioned order: (VSL) "... (4) violation severity level assignment should be based on a single violation, not a cumulative number of violations." VSL's for Requirements 2 and 3: The proposed VSLs for requirements 2 and 3 are currently based on a cumulative violation and therefore do not pass FERC's guideline. We believe that the SDT should review the above mentioned FERC NORP and make a decision if this project should be moved forward prior to addressing these issues.
Response: As you have stated in your comments the FERC document referenced is a Notice of Proposed Ruling (NOPR) and not a final ruling. With respect to your concerns on the Violation Risk Factors (VRFs), the VRFs for this standard were developed in accordance with the current Drafting Team Guidelines. In addition, FERC has issued final rulings with only the main Requirement (not sub-requirements) having an associated VRF. The Violation Severity Levels (VSLs) for this standard were developed in accordance with the current VSL Development Guidelines.				

Voter	Entity	Segment	Vote	Comment
Donald S. Watkins (1) Rebecca Berdahl (3) Francis J Halpin (5) Brenda S Anderson (6)	Bonneville Power Administration	1,3,5,6	Affirmative	Although we are in support of this standard, it needs more clarification, in particular Requirement #2 and Measure #2. Obviously, the System Operator Training Program for System Operator's entering training after the effective date of PER-005 will meet this requirement. How does the RC, BA, and TOP meet this standard for each System Operator deemed fully qualified previous to this standard? What is the basis? I.E. NERC Certification? Previous Training Program?, Management Approval? Does every System Dispatcher have to re-enter training? Tests? How do the RC'S, BA'S, and TOP'S determine if the method utilized to verify capability of performing the RC, BA, or TOP tasks meet NERC'S intent of this standard.
Response: The responsible entity must verify that each of its System Operators is capable of performing each company-specific reliability-related task. The standard provides several ways of documenting this verification – and each entity must determine how to accomplish this verification. If additional training is required to meet the verification requirement, then the responsible entity is expected to provide that training. As envisioned, many entities will already have some or most of the documentation needed to demonstrate compliance with Requirement R2. The Measure for M2 provides several examples of acceptable evidence: "This evidence can be documents such as training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments."				
Douglas E. Hils	Duke Energy Carolina	1	Affirmative	As currently written, requirement R3.1 says that unless you have an established IROL, or have established operating guides or protection systems to mitigate IROL violations, you do not need to comply with the requirement to train System Operators using simulation technology. However, paragraph 1393 of Order 693 states that simulators should be used by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. We believe that there are large entities who do not have established IROL's within their systems, or established operating guides or protection systems to mitigate IROL violations. Therefore a reliability disconnect exists between R3.1 and paragraph 1393. Requirement R3.1 should be modified to resolve this disconnect.

Voter	Entity	Segment	Vote	Comment
Response: The SPT SDT is responding to directives included in FERC Order 693. Order 693 does include a directive to require the use of simulators by reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation. The SDT believes that the language in Requirement R3.1 provides an alternative approach that meets the intent of the directive - using simulation technology such as a simulator, virtual technology or other technology that replicates the operational behavior of the BES during normal and emergency conditions. As envisioned, the intent of the directive was not aimed so much at an entity's size, but at the level of importance (from a reliability perspective) of the operational control – and by using IROLs as a delineating criterion, the SDT believes it has properly focused R3.1 on those entities that have the greatest impact on reliability of the BES.				
Robert Martinko	FirstEnergy Energy Delivery	1	Affirmative	FirstEnergy appreciates the work of the System Personnel Training standard drafting team and is voting AFFIRMATIVE to the proposed new PER-005-1 standard as well as the conforming changes to the PER-004-2 and retirement of PER-002-0. However, we would appreciate a response from the drafting regarding two questions related to PER-005-1. Requirement R2 states the following: R2: Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time. [Violation Risk Factor: High] [Time Horizon: Long-term Planning] R2.1: Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks. QUESTION 1: Based on reading the Implementation Plan, it is understood that we will have roughly 24 months beyond regulatory approval to finalize our list of reliability related tasks as required by R1.1 and complete the initial "one time" assessment of those reliability related tasks for each of our operators. It is assumed that the six month requirement as stated R2.1 only applies after this initial 24 month period and that any adjustments to our list of reliability related tasks within the first 24 month period would not trigger requirement R2.1. Requirement R3 states the following: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32

Voter	Entity	Segment	Vote	Comment
				hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. QUESTION 2:It is FirstEnergy interpretation that the intent is to complete 32 hours of emergency training on an annual (calendar year) basis and that an entity is not expected to continuously be able to show 32 hours of emergency compliance training on a rolling twelve month basis. It is our opinion that completing on an annual basis is consistent with other continuing education programs and provides greater flexibility in scheduling and completing the needed training. The present wording is open for interpretation and entities are exposed to differing views from compliance auditing staff. If FE's interpretation is correct, we suggest that the drafting team change the wording as follows: "On an annual, calendar year basis, each Reliability Coordinator ..."
Response: If an entity determines a new or modifies an existing reliability-related task, the entity would always have 6 months from the date of identifying a new or modifying an existing reliability-related task to be compliant with Sub-requirement R2.1. The SPT SDT did not intend to define the 12 month period for providing emergency operations training. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from “annually” to “every 12 months” to allow for the situation of new hires late in the calendar year.				
Joanne Kathleen Borrell (3) Kenneth Dresner (5) Mark S Travaglianti (6)	FirstEnergy Solutions	3,5,6	Affirmative	FirstEnergy appreciates the work of the System Personnel Training standard drafting team and is voting AFFIRMATIVE to the proposed new PER-005-1 standard as well as the conforming changes to the PER-004-2 and retirement of PER-002-0. However, we would appreciate a response from the drafting regarding two questions related to PER-005-1. Requirement R2 states the following: R2: Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator’s capabilities to perform each assigned task identified in R1.1 at least one time. [Violation Risk Factor: High] [Time Horizon: Long-term Planning] R2.1: Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing

Voter	Entity	Segment	Vote	Comment
				Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks. QUESTION 1: Based on reading the Implementation Plan, it is understood that we will have roughly 24 months beyond regulatory approval to finalize our list of reliability related tasks as required by R1.1 and complete the initial "one time" assessment of those reliability related tasks for each of our operators. It is assumed that the six month requirement as stated R2.1 only applies after this initial 24 month period and that any adjustments to our list of reliability related tasks within the first 24 month period would not trigger requirement R2.1. Requirement R3 states the following: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. QUESTION 2:It is FirstEnergy interpretation that the intent is to complete 32 hours of emergency training on an annual (calendar year) basis and that an entity is not expected to continuously be able to show 32 hours of emergency compliance training on a rolling twelve month basis. It is our opinion that completing on an annual basis is consistent with other continuing education programs and provides greater flexibility in scheduling and completing the needed training. The present wording is open for interpretation and entities are exposed to differing views from compliance auditing staff. If FE's interpretation is correct, we suggest that the drafting team change the wording as follows: "On an annual, calendar year basis, each Reliability Coordinator ..."

Response: If an entity determines a new or modifies an existing reliability-related task, the entity would always have 6 months from the date of identifying a new or modifying an existing reliability-related task to be compliant with Sub-requirement R2.1.

The SPT SDT did not intend to define the 12 month period for providing emergency operations training. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from "annually" to "every 12 months" to allow for the situation of new hires late in the calendar year.

Voter	Entity	Segment	Vote	Comment
Douglas Hohlbaugh	Ohio Edison Company	4	Affirmative	FirstEnergy appreciates the work of the System Personnel Training standard drafting team and is voting AFFIRMATIVE to the proposed PER-005-1 standard. However, we would appreciate a **Response** from the drafting related to questions related to requirements R2 and R3. Requirement R2 states the following: R2: Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time. [Violation Risk Factor: High] [Time Horizon: Long-term Planning] R2.1: Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks. QUESTION 1: Based on reading the Implementation Plan, it is understood that we will have roughly 24 months beyond regulatory approval to finalize our list of reliability related tasks as required by R1.1 and complete the initial "one time" assessment of those reliability related tasks for each of our operators. It is assumed that the six month requirement as stated R2.1 only applies after this initial 24 month period and that any adjustments to our list of reliability related tasks within the first 24 month period would not trigger requirement R2.1. Requirement R3 states the following: R3: At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. QUESTION 2:It is FirstEnergy interpretation that the intent is to complete 32 hours of emergency training on an annual (calendar year) basis and that an entity is not expected to continuously be able to show 32 hours of emergency compliance training on a rolling twelve month basis. It is our opinion that completing on an annual basis is

Voter	Entity	Segment	Vote	Comment
				consistent with other continuing education programs and provides greater flexibility in scheduling and completing the needed training. The present wording is open for interpretation and entities are exposed to differing views from compliance auditing staff. If FE's interpretation is correct, we suggest that the drafting team change the wording as follows: "On an annual, calendar year basis, each Reliability Coordinator ..."
Response: If an entity determines a new or modifies an existing reliability-related task, the entity would always have 6 months from the date of identifying a new or modifying an existing reliability-related task to be compliant with Sub-requirement R2.1. The SPT SDT did not intend to define the 12 month period for providing emergency operations training. The SPT SDT believes that this period should be defined by the individual entity on a case-by-case basis. The SPT SDT revised the condition for Requirement 3 from “annually” to “every 12 months” to allow for the situation of new hires late in the calendar year.				
Ajay Garg (1) Michael D Penstone (3)	Hydro One Networks, Inc.	1,3	Affirmative	Although we agree with the standard, thus the affirmative vote, there is a fundamental issue related with effective dates, that is, the dates in which Reliability Standards become effective and enforceable. In principle, the effective date of standards must be the same for all jurisdictions in North America. It does not make sense that there is a period of time when a standard is effective only in some jurisdictions while not in others. The words inserted in the Effective Date of the Standard as well as in the Implementation Plan document permit that the Standard becomes effective in some jurisdictions before it does in others. The Standard should be modified to ensure that it becomes effective in all jurisdictions at the same time, including those where such regulatory approval in not required that is, only when all regulatory approvals have been obtained.
Response: This is outside the scope of this SDT and we suggest discussing the inconsistent timing of implementation of standards in North America with the appropriate regulating agency.				

Voter	Entity	Segment	Vote	Comment
Terry Bilke	Midwest ISO, Inc.	2	Affirmative	We appreciate the work that has gone into the development of the training standard. It has come a long way to being something that the industry can achieve and contributes to reliability. We believe it's inappropriate to assign High VRFs to training requirements. While training is very important, failure to have documentation that an operator has been trained on a task does not put the interconnection at risk of cascading. This drains resources from important jobs and may actually decrease the quality and scope of training. It is quite likely that entities will be very cautious on what they put on their JTA as each added task carries a significant compliance administration burden and inflated sanctions exposure. We believe heavy handed VRFs and VSLs are a primary reason the due process pipeline is moving slowly. Not only has it taken Regions a long time to come up with the settlements, they are now required to provide additional documentation of why a lesser sanction is appropriate when the assigned VRF and VSLs come up with a penalty that doesn't reasonably fit the situation. Again, VRFs are supposed to measure the risk caused by violating the standard. Risk includes impact and probability. VRFs are not and should not be a measure of importance. There are many things we do as an industry that are important, but failing to do these important things once does not put the interconnection at risk of cascading. Finally, R1: "BES company-specific reliability-related tasks" appears to exclude potential BES fundamentals-related training and courses that are relevant to BES behavior and performance, yet not company specific.

Response: The SPT SDT believes, based on the existing definitions of the VRFs, the VRFs should not be changed. The analysis of the August 2003 Blackout showed that training, or the lack of training, was a significant factor that contributed to the blackout. The VRF Definitions can be found in the NERC Drafting Team Guidelines at (ftp://www.nerc.com/pub/sys/all_updl/standards/dt/Drafting_Team_Guidelines_01Jul07.pdf) as well as in the Reliability Standards Development Procedure Manual.

The SPT SDT is not trying to define all types of training to conduct, but is instead allowing the individual Reliability Coordinator, Balancing Authority or Transmission Operator to determine what type of BES fundamentals training is needed to operate their particular system.

Voter	Entity	Segment	Vote	Comment
Wayne Lewis	Progress Energy Carolinas	5	Affirmative	Although Progress Energy is voting Affirmative on PEF-005-1, we submit the following comments and request informal clarification on two of the requirements: Clarification on R1.1: What does NERC mean by "BES company-specific reliability-related task list? By using the word reliability, is NERC excluding Generation/AGC/Interchange type tasks? Is NERC only focusing on transmission related tasks? Clarification on R2: "shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time." Are existing NERC certified System Operators grandfathered?
Response: The Reference Document associated with the standard details some topics that could be used in development of a company-specific reliability-related task list. The topics identified in the reference document include generation, interchange and AGC functions. The responsible entity must verify that each of its System Operators is capable of performing each company-specific reliability-related task. There is no grandfathering.				
Richard Salgo	Sierra Pacific Power Co.	1	Affirmative	Nice job by the Standards Drafting Team. This one has been through numerous drafts, and this version hits the mark.
Response: The SDT thanks you for your affirmative response.				
Alan Gale	City of Tallahassee	5	Affirmative	While there are some items I take issue with, this standard is a good compromise and I thank the SDT for there perseverance.
Response: The SDT thanks you for your affirmative response.				

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Standards Announcement

Recirculation Ballot Window Open
December 12–22, 2008

Now available at: https://standards.nerc.net/CurrentBallots.aspx

Standard PER-005-1— System Personnel Training (Project 2006-01)

A recirculation ballot window is now open **until 8 p.m. EST on December 22, 2008** for a new standard (PER-005-1 — System Personnel Training).

The purpose of the standard is to help ensure that that System Operators performing real-time, reliability-related tasks on the North American bulk electric system are competent to perform those reliability-related tasks. The proposed standard is applicable to Reliability Coordinators, Balancing Authorities, and Transmission Operators.

An associated implementation plan and a reference document have been developed to aid in implementing the standard. The reference document has been updated since the last posting with some information about simulation technology. The ballot for this standard includes the retirement of the associated approved standard PER-002-0 — Operating Personnel Training as well as conforming changes to PER-004-1 — Reliability Coordination — Staffing.

Project Page:
http://www.nerc.com/filez/standards/System-Personnel-Training.html

Recirculation Ballot Process

The Standards Committee encourages all members of the Ballot Pool to review the consideration of comments submitted with the initial ballots. In the recirculation ballot, votes are counted by exception only — if a Ballot Pool member does not submit a revision to that member's original vote, the vote remains the same as in the first ballot. Members of the ballot pool may:

- Reconsider and change their vote from the first ballot.
- Vote in the second ballot even if they did not vote on the first ballot.
- Take no action if they do not want to change their original vote.

Standards Development Process

The Reliability Standards Development Procedure contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

For more information or assistance,
please contact Shaun Streeter at shaun.streeter@nerc.net or at 609.452.8060.

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. Standards Committee approves SAR for posting on December 1, 2004.
2. SAR Drafting Team posted SAR for comments on December 7, 2004.
3. SAR Drafting Team responds to comments, revises SAR, and posts revised SAR for comments on February 17, 2006.
4. SAR Drafting Team responds to comments and revises SAR on May 15, 2006.
5. Standards Committee approves development of Standard on May 15, 2006.
6. The Standards Authorization Committee appointed the Standard Drafting Team on June 21, 2006.
7. Standards Drafting Team posted draft standard for comment on September 27, 2006.
8. Standards Drafting Team responded to comments and posted the revised standard on August 15, 2007.
9. Standard Drafting Team responded to comments and posted the revised standard for comment on February 15, 2008.
10. Standards Drafting Team responded to comments and posted the revised standard for comment on June 18, 2008.
11. Standards Drafting Team responded to comments from the fourth posting and will request the Standards Committee to move the standard forward to balloting on September 15, 2008.

Proposed Action Plan and Description of Current Draft:

This is the fifth version of the proposed standard and its associated implementation plan that has been posted for industry comments. The drafting team will be requesting the Standards Committee to move the standard forward to balloting.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments on the fourth draft of the proposed standard.	September 15, 2008
2. Obtain the Standards Committee's approval to move the standard forward to balloting.	September 15, 2008
3. Post the standard and implementation plan for a 30-day pre-ballot review.	September 17, 2008
4. Conduct an initial ballot for ten days.	October 17, 2008
5. Respond to comments submitted with the initial ballot.	November 1, 2008

6. Conduct a recirculation ballot for ten days.	November 11, 2008
7. Post for a 30-day preview for board.	November 21, 2008
8. BOT adoption.	December 22, 2008

A. Introduction

1. Title: **System Personnel Training**

2. Number: PER-005-1

3. Purpose: To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent to perform those reliability-related tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.

4. Applicability:

4.1. Functional Entities:

4.1.1 Reliability Coordinator.

4.1.2 Balancing Authority.

4.1.3 Transmission Operator.

5. Proposed Effective Date for Regulatory Approvals:

5.1. In those jurisdictions where regulatory approval is required, Requirement R1 and Requirement R2 shall become effective on the first day of the first calendar quarter, 24 months after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, Requirement R1 and Requirement R2 shall become effective on the first day of the first calendar quarter, 24 months after Board of Trustees adoption.

5.2. In those jurisdictions where regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after Board of Trustees adoption.

5.3. In those jurisdictions where regulatory approval is required Sub-requirement R3.1 shall become effective on the first day of the first calendar quarter, 36 months after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, the Sub-requirement R3.1 shall become effective on the first day of the first calendar quarter, 36 months after Board of Trustees adoption.

B. Requirements

R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall create a list of BES company-specific reliability-related tasks performed by its System Operators.

R1.1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall update its list of BES company-specific reliability-related tasks performed by its System Operators each calendar year to identify new or modified tasks for inclusion in training.

R1.2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall design and develop learning objectives and training materials based on the task list created in R1.1.

R1.3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall deliver the training established in R1.2.

R1.4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of the training program established in R1, to identify any needed changes to the training program and shall implement the changes identified.

R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

R2.1. Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks.

R3. At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R3.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

C. Measures

M1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence of using a systematic approach to training to establish and implement a training program, as specified in R1.

M1.1 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its company-specific reliability-related task list, with the date of the last review and/or revision, as specified in R1.1.

M1.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and training materials, as specified in R1.2.

M1.3 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection System Operator training records showing the names of the people trained, the title of the training delivered and the dates of delivery to show that it delivered the training, as specified in R1.3.

M1.4 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence (such as instructor observations, trainee feedback, supervisor feedback, course evaluations, learning assessments, or internal audit results) that it performed an annual training program evaluation, as specified in R1.4

M2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence to show that it verified that each of its System Operators is

capable of performing each assigned task identified in R1.1, as specified in R2. This evidence can be documents such as training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments.

M3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator has obtained 32 hours of emergency operations training, as specified in R3.

M3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator received emergency operations training using simulation technology, as specified in R3.1.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

1.2. Compliance Monitoring Period and Reset

Not Applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance for three years or since its last compliance audit, whichever time frame is the greatest, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.

If a Reliability Coordinator, Balancing Authority and Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1	None	The responsible entity failed to provide evidence that it updated its company-specific reliability-related task list to identify new or modified tasks each calendar year (R1.1.1) OR The responsible entity failed to provide evidence of evaluating its training program to identify needed changes to its training program(s). (R1.4)	The responsible entity failed to design and develop learning objectives and training materials based on the BES company specific reliability related tasks. (R1.2)	The responsible entity failed to prepare a company-specific reliability-related task list (R1.1) OR The responsible entity failed to deliver training based on the BES company specific reliability related tasks. (R1.3)
R2	None	The responsible entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)	The responsible entity verified at least 70% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks (R2) OR The responsible entity failed to verify its system operator's capabilities to perform each new or modified task within six months of making a modification to its BES company-specific reliability-related task list. (R2.1)	The responsible entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)
R3	None	The responsible entity provided at least 32 hours of emergency operations training to at least 90% but less than 100% of their System Operators. (R3)	The responsible entity provided at least 32 hours of emergency operations training to at least 70% but less than 90% of its System Operators. (R3)	The responsible entity provided 32 hours of emergency operations training to less than 70% of its System Operators (R3)

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
				OR The responsible entity did not include simulation technology replicating the operational behavior of the BES in its emergency operations training. (R3.1)

E. Regional Variances

None.

Version History

Version	Date	Action	Change Tracking

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. Standards Committee approves SAR for posting on December 1, 2004.
2. SAR Drafting Team posted SAR for comments on December 7, 2004.
3. SAR Drafting Team responds to comments, revises SAR, and posts revised SAR for comments on February 17, 2006.
4. SAR Drafting Team responds to comments and revises SAR on May 15, 2006.
5. Standards Committee approves development of Standard on May 15, 2006.
6. The Standards Authorization Committee appointed the Standard Drafting Team on June 21, 2006.
7. Standards Drafting Team posted draft standard for comment on September 27, 2006.
8. Standards Drafting Team responded to comments and posted the revised standard on August 15, 2007.
9. Standard Drafting Team responded to comments and posted the revised standard for comment on February 15, 2008.
10. Standards Drafting Team responded to comments and posted the revised standard for comment on June 18, 2008.
11. Standards Drafting Team responded to comments from the fourth posting and will request the Standards Committee to move the standard forward to balloting on September 15, 2008.

Proposed Action Plan and Description of Current Draft:

This is the fifth version of the proposed standard and its associated implementation plan that has been posted for industry comments. The drafting team will be requesting the Standards Committee to move the standard forward to balloting.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments on the fourth draft of the proposed standard.	September 15, 2008
2. Obtain the Standards Committee's approval to move the standard forward to balloting.	September 15, 2008
3. Post the standard and implementation plan for a 30-day pre-ballot review.	September 17, 2008
4. Conduct an initial ballot for ten days.	October 17, 2008
5. Respond to comments submitted with the initial ballot.	November 1, 2008

6. Conduct a recirculation ballot for ten days.	November 11, 2008
7. Post for a 30-day preview for board.	November 21, 2008
8. BOT adoption.	December 22, 2008

A. Introduction

1. Title: **System Personnel Training**

2. Number: PER-005-1

3. Purpose: To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent to perform those reliability-related tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.

4. Applicability:

4.1. Functional Entities:

4.1.1 Reliability Coordinator.

4.1.2 Balancing Authority.

4.1.3 Transmission Operator.

5. Proposed Effective Date for Regulatory Approvals:

5.1. In those jurisdictions where regulatory approval is required, Requirement R1 and Requirement R2 shall become~~s~~ effective on the first day of the first calendar quarter, 24 months after ~~the first day of the first calendar quarter following~~ applicable regulatory approval. ~~, or i~~In those jurisdictions where no regulatory approval is required, Requirement R1 and Requirement R2 shall ~~the Reliability Standard~~ become~~s~~ effective on the first day of the first calendar quarter, 24 months after ~~the first day of the first calendar quarter after~~ Board of Trustees adoption.

5.2. In those jurisdictions where regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after Board of Trustees adoption.~~Requirement R3 is presently in effect and will remain in effect upon approval of this Standard.~~

5.3. In those jurisdictions where regulatory approval is required ~~S~~sub~~-R~~requirement R3.1 shall become~~s~~ effective on the first day of the first calendar quarter, 36 months after ~~the first day of the first calendar quarter following~~ applicable regulatory approval. ~~I, or i~~n those jurisdictions where no regulatory approval is required, ~~the S~~s~~s~~ub~~-~~requirement R3.1 shall become~~s~~ effective on the first day of the first calendar quarter, 36 months after ~~the first day of the first calendar quarter after~~ Board of Trustees adoption.

B. Requirements

R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall create a list of BES company-specific reliability-related tasks performed by its System Operators.

R1.1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall update its list of BES company-specific reliability-related

tasks performed by its System Operators each calendar yearat least annually to identify new or modified tasks for inclusion in training.

R1.2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall design and develop learning objectives and training materials based on the task list created in R1.1.

R1.3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall deliver the training established in R1.2.

R1.4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of the training program established in R1, to identify any needed changes to the training program and shall implement the changes identified.

R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

R2.1. Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks.

R3. At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel~~,~~. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

R3.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.

C. Measures

M1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence of using a systematic approach to training to establish and implement a training program, as specified in R1.

M1.1 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its company-specific reliability-related task list, with the date of the last review and/or revision, as specified in R1.1.

M1.2 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and training materials, as specified in R1.2.

M1.3 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection System Operator training records showing the names of the people trained, the title of the training delivered and the dates of delivery to show that it delivered the training, as specified in R1.3.

M1.4 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence (such as instructor observations, trainee

feedback, supervisor feedback, course evaluations, learning assessments, or internal audit results) that it performed an annual training program evaluation, as specified in R1.4

M2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence to show that it verified that each of its System Operators is capable of performing each assigned task identified in R1.1, as specified in R2. This evidence can be documents such as training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments.

M3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator has obtained 32 hours of emergency operations training, as specified in R3.

M3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator received emergency operations training using simulation technology, as specified in R3.1.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

1.2. Compliance Monitoring Period and Reset

Not Applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

Each Reliability Coordinator, Balancing Authority and Transmission Operator shall keep data or evidence to show compliance for three years or since its last compliance audit, whichever time frame is the greatest, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.~~.~~

If a Reliability Coordinator, Balancing Authority and Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.5. Additional Compliance Information

None.

~~2.~~Violation Severity Levels

2.

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1	None	The responsible entity failed to provide evidence that it updated its company-specific reliability-related task~~s~~ list to identify new or modified tasks each calendar year~~on an annual basis~~ (R1.1.1) OR The responsible entity failed to provide evidence of evaluating its training program to identify needed changes to its training program(s). (R1.4)	The responsible entity failed to design and develop learning objectives and training materials based on the BES company specific reliability related tasks ~~(when developing a new or modifying an existing training program)~~. (R1.2)	~~When developing a new or modifying an existing training program, t~~The responsible entity failed to prepare a company-specific reliability-related task~~s~~ list (R1.1) OR ~~When developing a new or modifying an existing training program t~~The responsible entity failed to deliver training based on the BES company specific reliability related tasks. (R1.3)
R2	None	The responsible entity verified at least 90% but less than 100% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)	The responsible entity verified at least 70% but less than 90% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks (R2) OR The responsible entity failed to verify its system operator's capabilities to perform each new or modified task within six months of making a modification to its BES company-specific reliability~~-~~ related task~~s~~ list. (R2.1)	The responsible entity verified less than 70% of its System Operators' capabilities to perform each assigned task from its list of BES company-specific reliability-related tasks. (R2)

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R3	None	The responsible entity provided at least 32 hours of emergency operations training to at least 90% but less than 100% of their System Operators. (R3)	The responsible entity provided at least 32 hours of emergency operations training to at least 70% but less than 90% of its System Operators. (R3)	The responsible entity provided 32 hours of emergency operations training to less than 70% of its System Operators (R3) OR The responsible entity did not include simulation technology replicating the operational behavior of the BES in its emergency operations training. (R3.1)

E. Regional Variances

None.

Version History

Version	Date	Action	Change Tracking

A. Introduction

1. Title: Reliability Coordination — Staffing

2. Number: PER-004-2

3. Purpose:

Reliability Coordinators must have sufficient, competent staff to perform the Reliability Coordinator functions.

4. Applicability

4.1. Reliability Coordinators.

5. Effective Date:

- Retire Requirement 2 when PER-005-1 Requirement 3 becomes effective.
- Retire Requirements 3 and 4 when PER-005-1 Requirements 1 and 2 become effective.

B. Requirements

R1. Each Reliability Coordinator shall be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

R2. Reliability Coordinator operating personnel shall place particular attention on SOLs and IROLs and inter-tie facility limits. The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times.

C. Measures

None

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an

extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

Each Reliability Coordinator shall keep evidence of compliance for the previous two calendar years plus the current year.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

1.4. Additional Compliance Information

None.

2. Levels of Non-Compliance for a Reliability Coordinator (Replaced with VSLs)

2.1.

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised
2		Retire R2 and M1 when PER-005-1 Requirement 3 becomes effective. Retire R3, R4 and M2 when PER-005 R1 and R2 become effective.	Revised

A. Introduction

1. Title: **Reliability Coordination — Staffing**

2. Number: PER-004-~~1~~2

3. Purpose:

Reliability Coordinators must have sufficient, competent staff to perform the Reliability Coordinator functions.

4. Applicability

4.1. Reliability Coordinators.

5. Effective Date: ~~January 1, 2007~~

- Retire Requirement~~s~~ 2 ~~and 5 retired~~ when PER-005-1 Requirement 3 becomes effective.
- ~~1.~~ Retire Requirements 3 and 4 ~~retired~~ when PER-005-1 Requirements 1 and 2 become effective.

B. Requirements

R1. Each Reliability Coordinator shall be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

~~**R2.** All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.~~

~~**R3.** Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.~~

~~**R4.** Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.~~

R2. Reliability Coordinator operating personnel shall place particular attention on SOLs and IROLs and inter-tie facility limits. The Reliability Coordinator shall ensure protocols are in place to allow Reliability Coordinator operating personnel to have the best available information at all times.

C. Measures

None

~~**M1.** The Reliability Coordinator shall have and provide upon request training records that confirm that each of its operating personnel has completed a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel, as specified in Requirement 2.~~

M2.Each Reliability Coordinator shall have and provide upon request evidence that could include but is not limited to, a documented training program and individual training records for each of its operating personnel or other equivalent evidence that will be used to confirm that it meets Requirements 3 and 4.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

Each Reliability Coordinator shall keep evidence of compliance for the previous two calendar years plus the current year.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

1.4. Additional Compliance Information

None.

2. Levels of Non-Compliance for a Reliability Coordinator (Replaced with VSLs)

2.1.Level 1: Not applicable.

2.2. **Level 2:** Not applicable.

2.3. **Level 3:** Not applicable.

2.4.2.1. **Level 4:** There shall be a separate Level 4 non-compliance, for every one of the following requirements that is in violation:

2.4.1 One or more of its shift operating personnel did not complete a minimum of five days per year of training and drills using realistic simulations of system emergencies in the past year. (R2)

2.4.2 No evidence operating personnel have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas. (R3)

2.4.3 No evidence operating personnel have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area. (R4)

E. Regional Differences

1. None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed "Proposed" from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised
2		Retire R2 and M1 when PER-005-1 Requirement 3 becomes effective. Retire R3, R4 and M2 when PER-005 R1 and R2 become effective.	Revised

The SPT SDT recommends that this entire standard be retired when PER-005 becomes effective.

A. Introduction

1. **Title:** **Operating Personnel Training**

2. **Number:** PER-002-0

3. **Purpose:** Each Transmission Operator and Balancing Authority must provide their personnel with a coordinated training program that will ensure reliable system operation.

4. **Applicability**

   4.1. Balancing Authority.

   4.2. Transmission Operator.

5. **Effective Date:** April 1, 2005

B. Requirements

R1. Each Transmission Operator and Balancing Authority shall be staffed with adequately trained operating personnel.

R2. Each Transmission Operator and Balancing Authority shall have a training program for all operating personnel that are in:

R2.1. Positions that have the primary responsibility, either directly or through communications with others, for the real-time operation of the interconnected Bulk Electric System.

R2.2. Positions directly responsible for complying with NERC standards.

R3. For personnel identified in Requirement R2, the Transmission Operator and Balancing Authority shall provide a training program meeting the following criteria:

R3.1. A set of training program objectives must be defined, based on NERC and Regional Reliability Organization standards, entity operating procedures, and applicable regulatory requirements. These objectives shall reference the knowledge and competencies needed to apply those standards, procedures, and requirements to normal, emergency, and restoration conditions for the Transmission Operator and Balancing Authority operating positions.

R3.2. The training program must include a plan for the initial and continuing training of Transmission Operator and Balancing Authority operating personnel. That plan shall address knowledge and competencies required for reliable system operations.

R3.3. The training program must include training time for all Transmission Operator and Balancing Authority operating personnel to ensure their operating proficiency.

R3.4. Training staff must be identified, and the staff must be competent in both knowledge of system operations and instructional capabilities.

R4. For personnel identified in Requirement R2, each Transmission Operator and Balancing Authority shall provide its operating personnel at least five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.

C. Measures

M1. The Transmission Operator and Balancing Authority operating personnel training program shall be reviewed to ensure that it is designed to promote reliable system operations.

D. Compliance

1. Compliance Monitoring Process

Periodic Review: The Regional Reliability Organization will conduct an on-site review of the Transmission Operator and Balancing Authority operating personnel training program every three years. The operating personnel training records will be reviewed and assessed compared to the program curriculum.

1.1. Compliance Monitoring Responsibility

Self-certification: The Transmission Operator and Balancing Authority will annually provide a self-certification based on Requirements R1 through R4.

1.2. Compliance Monitoring Period and Reset Timeframe

One calendar year.

1.3. Data Retention

Three years.

1.4. Additional Compliance Information

Not specified.

2. Levels of Non-Compliance

2.1. Level 1: N/A.

2.2. Level 2: The Transmission Operator or Balancing Authority operating personnel training program does not address all elements of Requirement R3.

2.3. Level 3: The Transmission Operator or Balancing Authority operating personnel training program does not address Requirement R4.

2.4. Level 4: A Transmission Operator or Balancing Authority has not provided a training program for its operating personnel.

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Proposed Effective Date	Errata

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Implementation Plan for PER-005-1 – System Personnel Training

Prerequisite Approvals

There are no other reliability standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this standard can be implemented.

Modified Standards

PER-002-0 should be retired when PER-005-0 becomes effective.

PER-004-1 Requirements 2, 3 and 4 should be retired when PER-005-1 becomes effective.

The following tables summarize the mapping of the PER-004-1 requirements to PER-005-1 and other standard requirements:

PER-004-1 Requirement	PER-005-1 Requirements
R2. All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.	R3. At least every 12 months, each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each System Operator with at least 32 hours of emergency operations training applicable to its organization that reflect emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. Note: PER-005-1 R3 includes PER-004-1 R2 and therefore PER-004-1 R2 should be retired. (Note that the five days per year of training has been clarified to mean 32 hours of training.)
R3. Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and implement the program. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each task identified in R1.1 at least one time.

PER-004-1 Requirement	PER-005-1 Requirements
	Note: The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R2) duplicate PER-004-1 R3 and therefore PER-004-1 R3 should be retired.
R4. Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each task identified in R1.1 at least one time. Note: The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R3) duplicate PER-004-1 R4 and therefore PER-004-1 R4 should be removed.

A red-line version of PER-004-1 is posted with this Implementation Plan.

Compliance with Standards

Once this standard becomes effective, the responsible entities identified in the applicability section of the standard must comply with the requirements. These include:

- Reliability Coordinators
- Balancing Authorities
- Transmission Operators

Proposed Effective Date

Compliance with PER-005 shall be implemented over a three-year period, as follows:

- Requirement R1 and Requirement R2 become effective the first day of the first calendar quarter 24 months after regulatory approval or, in those jurisdictions where regulatory approval is not required, these requirements become effective the first day of the first calendar quarter 24 months after Board of Trustees adoption.
- PER-002-0 Requirement R4 and PER-004-1 Requirement R2 are presently in effect and will be retired when PER-005-1 Requirement R3 becomes effective on the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, on the first day of the first calendar quarter following Board of Trustees adoption.
- Subrequirement R3.1 becomes effective on the first day of the first calendar quarter 36 months after applicable regulatory approval, or in those jurisdictions where no regulatory approval is required, this subrequirement becomes effective on the first day of the first calendar quarter 36 months after Board of Trustees adoption.

Training

- The SPT SDT will provide training on the use of a systematic approach to training, either in conjunction with a NERC workshop or independent PER-005 training, dependent on the preference of the industry.

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Implementation Plan for PER-005-1 – System Personnel Training

Prerequisite Approvals

There are no other reliability standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this standard can be implemented.

Modified Standards

PER-002-0 should be retired when PER-005-0 becomes effective.

PER-004-1 Requirements 2, 3 and 4 should be retired when PER-005-1 becomes effective.

The following tables summarize the mapping of the PER-004-1 requirements to PER-005-1 and other standard requirements:

PER-004-1 Requirement	PER-005-1 Requirements
R2. All Reliability Coordinator operating personnel shall each complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.	R3. At least every 12 months, each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each System Operator with at least 32 hours of emergency operations training applicable to its organization that reflect emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. R3.1 Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions. Note: PER-005-1 R3 includes PER-004-1 R2 and therefore PER-004-1 R2 should be retired. (Note that the five days per year of training has been clarified to mean 32 hours of training.)
R3. Reliability Coordinator operating personnel shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator Areas.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and implement the program. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each task identified in R1.1 at least one time.

PER-004-1 Requirement	PER-005-1 Requirements
	Note: The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R2) duplicate PER-004-1 R3 and therefore PER-004-1 R3 should be retired.
R4. Reliability Coordinator operating personnel shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities, and operational restrictions.	R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program. R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each task identified in R1.1 at least one time. Note: The training program (PER-005-1 R1) and an assessment of each System Operator's capabilities (PER-005-1 R3) duplicate PER-004-1 R4 and therefore PER-004-1 R4 should be removed.

A red-line version of PER-004-1 is posted with this Implementation Plan.

Compliance with Standards

Once this standard becomes effective, the responsible entities identified in the applicability section of the standard must comply with the requirements. These include:

- Reliability Coordinators
- Balancing Authorities
- Transmission Operators

Proposed Effective Date

Compliance with PER-005 shall be implemented over a three-year period, as follows:

- Requirement R1 and Requirement R2 become effective ~~24 months after~~ the first day of the first calendar quarter 24 months after~~following~~ regulatory approval or, in those jurisdictions where regulatory approval is not required, these requirements ~~otherwise~~ become~~s~~ effective ~~24 months after~~ the first day of the first calendar quarter 24 months after Board of Trustee~~s~~ adoption.
- PER-002-0 Requirement R4 and PER-004-1 Requirement R2 are presently in effect and will be retired when PER-005-1 Requirement R3 becomes effective on the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, on the first day of the first calendar quarter following Board of Trustees adoption.
- ~~is presently in effect and will remain in effect upon approval of this Standard~~.
- Sub-r~~R~~equirement R3.1 becomes effective on~~36 months after~~ the first day of the first calendar quarter 36 months after~~following~~ applicable regulatory approval, or in those jurisdictions where no regulatory approval is required, this sub-requirement becomes effective on ~~36 months after~~ the first day of the first calendar quarter 36 months after Board of Trustee~~s~~ adoption.

Training

- The SPT will provide training on the use of a systematic approach to training, either in conjunction with a NERC workshop or independent PER-005 training, dependent on the preference of the industry.

PER-005 System Personnel Training
Reference Document

Reference #1: Determining Task Performance Requirements

The purpose of this reference is to provide guidance in writing a performance standard that describes the desired outcome of a task. A standard for acceptable performance should be in either measurable or observable terms.

Clear standards of performance are necessary for an individual to know when he or she has completed the task and to ensure agreement between employees and their supervisors on the objective of a task. Performance standards answer the following questions:

How timely must the task be performed?

Or

How accurately must the task be performed?

Or

With what quality must it be performed?

Or

What response from the customer must be accomplished?

When a performance standard is quantifiable, successful performance is more easily demonstrated. For example, in the following task statement, the criteria for successful performance is to return system loading to within normal operating limits, which is a number that can be easily verified.

> Given a System Operating Limit violation on the transmission system, implement the correct procedure for the circumstances to mitigate loading to within normal operating limits.

Even when the outcome of a task cannot be measured as a number, it may still be observable. The next example contains performance criteria that is qualitative in nature, that is, it can be verified as either correct or not, but does not involve a numerical result.

> Given a tag submitted for scheduling, ensure that all transmission rights are assigned to the tag per the company Tariff and in compliance with NERC and NAESB standards.

Reference #2: Systematic Approach to Training References:

The following list of hyperlinks identifies references for the NERC Standard PER-005 to assist with the application of a systematic approach to training:

(1) DOE-HDBK-1078-94, A Systematic Approach to Training
http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1078/hdbk1078.pdf

(2) DOE-HDBK-1074-95, January 1995, Alternative Systematic Approaches to Training, U.S. Department of Energy, Washington, D.C. 20585 FSC 6910
http://www.hss.energy.gov/NuclearSafety/techstds/standard/hdbk1074/hdb1074.html

(3) ADDIE — 1975, Florida State University
http://www.nwlink.com/~donclark/history_isd/addie.html

(4) DOE Standard — Table-Top Needs Analysis
DOE-HDBK-1103-96
http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1103/hdbk1103.pdf

Reference #3: Normal and Emergency Operations Topics

These topics are identified as meeting the topic criteria for normal and emergency operations training per Requirement 1 and Requirement 3 of this standard.

A. Recognition and Response to System Emergencies

1. Emergency drills and responses
2. Communication tools, protocols, coordination
3. Operating from backup control centers
4. System operations during unstudied situations
5. System Protection
6. Geomagnetic disturbances weather impacts on system operations
7. System Monitoring – voltage, equipment loading
8. Real-time contingency analysis
9. Offline system analysis tools
10. Monitoring backup plans
11. Sabotage, physical, and cyber threats and responses

B. Operating Policies and Standards Related to Emergency Operations

1. NERC standards that identify emergency operations practices (e.g. EOP Standards)
2. Regional reliability operating policies
3. Sub-regional policies and procedures
4. ISO/RTO policies and procedures

C. Power System Restoration Philosophy and Practices

1. Black start
2. Interconnection of islands – building islands
3. Load shedding – automatic (under-frequency and under-voltage) and manual
4. Load restoration philosophies

D. Interconnected Power System Operations

1. Operations coordination
2. Special protections systems
3. Special operating guides
4. Voltage and reactive control, including responding to eminent voltage collapse
5. Understanding the concepts of Interconnection Reliability Operating Limits versus System Operating Limits
6. DC tie operations and procedures during system emergencies
7. Thermal and dynamic limits
8. Unscheduled flow mitigation − congestion management
9. Local and regional line loading procedures
10. Radial load and generation operations and procedures
11. Tie line operations
12. E-tagging and Interchange Scheduling
13. Generating unit operating characteristics and limits, especially regarding reactive capabilities and the relationship between real and reactive output

E. Technologies and Tools

1. Forecasting tools
2. Power system study tools
3. Interchange Distribution Calculator (IDC)

F. Market Operations as They Relate to Emergency Operations

1. Market rules
2. Locational Marginal Pricing (LMP)
3. Transmission rights
4. OASIS
5. Tariffs
6. Fuel management
7. Real-time, hour-ahead and day-ahead tools

Definitions of Simulation and Simulators

Georgia Institute of Technology
Modeling & Simulation for Systems Engineering
http://www.pe.gatech.edu/conted/servlet/edu.gatech.conted.course.ViewCourseDetails?COURSE_ID=840

Simulation is the process of designing a model of a system and conducting experiments to understand the behavior of the system and/or evaluate various strategies for the operation of the system. The modeling & simulation life cycle refers to steps that take place during the course of a simulation study, which include problem formulation, conceptual model development, and output data analysis. Explore modeling & simulation, by using the M&S life cycle as an outline for exploring systems engineering concepts.

University of Central Florida – Institute for Simulation & Training
http://www.ist.ucf.edu/overview.htm

Just what is "simulation" anyway (or, Simulation 101)?
And what about "modeling"? (see below)
But what does IST do with simulations? (answer)

In its broadest sense, simulation is imitation. We've used it for thousands of years to train, explain and entertain. Thanks to the computer age, we're really getting good at using simulation for all three.

Simulations (and models, too) are abstractions of reality. Often they deliberately emphasize one part of reality at the expense of other parts. Sometimes this is necessary due to computer power limitations. Sometimes it's done to focus your attention on an important aspect of the simulation. Whereas models are mathematical, logical, or some other structured representation of reality, simulations are the specific application of models to arrive at some outcome (more about models, below).

Three types of simulations
Simulations generally come in three styles: live, virtual and constructive. A simulation also may be a combination of two or more styles.

Live simulations typically involve humans and/or equipment and activity in a setting where they would operate for real. Think *war games* with soldiers out in the field or manning command posts. Time is continuous, as in the real world. Another example of live simulation is testing a car battery using an electrical tester.

Virtual simulations typically involve humans and/or equipment in a computer-controlled setting. Time is in discrete steps, allowing users to concentrate on the important stuff, so to speak. A flight simulator falls into this category.

Constructive simulations typically do not involve humans or equipment as participants. Rather than by time, they are driven more by the proper sequencing of events. The anticipated path of a hurricane might be "constructed" through application of temperatures, pressures, wind currents and other weather factors.

A simulator is a device that may use any combination of sound, sight, motion and smell to make you feel

that you are experiencing an actual situation. Some video games are good examples of low-end simulators. For example, you have probably seen or played race car arcade games.

The booths containing these games have a steering wheel, stick shift, gas and brake pedals and a display monitor. You use these devices to "drive" your "race car" along the track and through changing scenery displayed on the monitor. As you drive, you hear the engine rumble, the brakes squeal and the metal crunch if you crash. Some booths use movement to create sensations of acceleration, deceleration and turning. The sights, sounds and feel of the game booth combine to create, or simulate, the experience of driving a car in a race.

Most people first think of "flight simulators" or "driving simulators" when they hear the term "simulation." But simulation is much more.

Because they can recreate experiences, simulations hold great potential for training people for almost any situation. Education researchers have, in fact, determined that people, especially adults, learn better by experience than through reading or lectures. Simulated experiences can be just as valuable a training tool as the real thing.

Simulations are complex, computer-driven *re*-creations of the real thing. When used for training, they must recreate "reality" accurately, otherwise you may not learn the right way to do a task.

For example, if you try to practice how to fly in a flight simulator game that does not accurately *model* (see definition, below) the flight characteristics of an airplane, you will not learn how a real aircraft responds to your control.

Building simulator games is not easy, but creating simulations that *accurately* answer such questions as *"If I do this, what happens then?"* is even more demanding.

Over the years, government and industry, working independently with new technologies and hardware, developed a wide range of products and related applications to improve simulation science. This independence, however, often led to sporadic or redundant research efforts.

To benefit from each other's latest advances, researchers from across the country needed better communication and, ideally, a common source of supporting academic studies. The State of Florida recognized these needs and in 1982 established the Institute for Simulation and Training at the University of Central Florida.

What we do at IST

IST's mission is to advance the state of the art and science of modeling and simulation by

- performing basic and applied simulation research
- supporting education in modeling and simulation and related fields
- serving public and private simulation communities

We don't produce simulator hardware. That's a job for industry. But we've successfully developed working prototype hardware that provides new uses for simulations. We'll also help develop new applications for existing hardware, and scientifically test the results using human factors and other criteria for effective human-machine interface and learning. Too often overlooked, human factors testing is crucial to ultimate simulation effectiveness. We're fortunate to be closely connected, through joint faculty appointments and

working relationships, with one of the top, if not the leading human factors department in the nation—right here at UCF.

We also explore the frontiers of simulation science, expanding our knowledge of ways to stimulate the human senses with advanced optical, audio and haptic technologies.

Still obfuscated? Go here...

Modeling: a model definition

A computer model, as used in modeling and simulation science, is a mathematical representation of something—a person, a building, a vehicle, a tree—any object. A model also can be a representation of a process—a weather pattern, traffic flow, air flowing over a wing.

Models are created from a mass of data, equations and computations that mimic the actions of things represented. Models usually include a graphical display that translates all this number crunching into an animation that you can see on a computer screen or by means of some other visual device.

Models can be simple images of things—the outer shell, so to speak—or they can be complex, carrying all the characteristics of the object or process they represent. A complex model will simulate the actions and reactions of the real thing. To make these models behave the way they would in real life, accurate, real-time simulations require fast computers with lots of number crunching power.

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Standards Announcement

Final Ballot Results

Now available at: https://standards.nerc.net/Ballots.aspx

Interpretation of TOP-002-2 — Normal Operations Planning, Requirement R11 (Project 2008-13)

The ballot has passed and will be submitted to the NERC Board of Trustees for approval.

The recirculation ballot for the interpretation of TOP-002-2 — Normal Operations Planning Requirement R11 (requested by Orlando Utilities Commission) ended December 19, 2008. The final ballot results are shown below. The Ballot Results Web page provides a link to the detailed results.

Quorum: 87.62 %
Approval: 97.47 %

Project page: http://www.nerc.com/filez/standards/Project2008-13_TOP-002_Interpretation_OUC.html

Standard FAC-008-2 — Facility Ratings (Project 2006-09)

The ballot has failed.

The recirculation ballot for Standard FAC-008-2 — Facility Ratings (Project 2006-09) ended December 19, 2008. The final ballot results are shown below. The Ballot Results Web page provides a link to the detailed results.

Quorum: 93.04 %
Approval: 57.37 %

Project page: http://www.nerc.com/filez/standards/Facility_Ratings_Project_2006-09.html

Standard PER-005-1— System Personnel Training (Project 2006-01)

The ballot has passed and will be submitted to the NERC Board of Trustees for approval.

The recirculation ballot for Standard PER-005-1— System Personnel Training (Project 2006-01) ended December 22, 2008. The final ballot results are shown below. The Ballot Results Web page provides a link to the detailed results.

Quorum: 91.48 %
Approval: 80.63 %

Project page: http://www.nerc.com/filez/standards/System-Personnel-Training.html

Ballot Criteria

Approval requires both:

- A quorum, which is established by at least 75% of the members of the ballot pool for submitting either an affirmative vote, a negative vote, or an abstention; and
- A two-thirds majority of the weighted segment votes cast must be affirmative. The number of votes cast is the sum of affirmative and negative votes, excluding abstentions and nonresponses.

Standards Development Process

The Reliability Standards Development Procedure contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

For more information or assistance,
please contact Shaun Streeter at shaun.streeter@nerc.net or at 609.452.8060.

Ballot Results

Ballot Name:	Project 2006-01 - PER-005-1_rc
Ballot Period:	12/12/2008 - 12/22/2008
Ballot Type:	recirculation
Total # Votes:	204
Total Ballot Pool:	223
Quorum:	**91.48 % The Quorum has been reached**
Weighted Segment Vote:	80.63 %
Ballot Results:	**The Standard has Passed**

Summary of Ballot Results

Segment	Ballot Pool	Segment Weight	Affirmative # Votes	Affirmative Fraction	Negative # Votes	Negative Fraction	Abstain # Votes	No Vote
1 - Segment 1.	63	1	48	0.814	11	0.186	1	3
2 - Segment 2.	10	0.9	7	0.7	2	0.2	0	1
3 - Segment 3.	51	1	33	0.767	10	0.233	2	6
4 - Segment 4.	13	1	8	0.727	3	0.273	1	1
5 - Segment 5.	42	1	29	0.806	7	0.194	1	5
6 - Segment 6.	27	1	20	0.833	4	0.167	1	2
7 - Segment 7.	0	0	0	0	0	0	0	0
8 - Segment 8.	2	0.2	2	0.2	0	0	0	0
9 - Segment 9.	6	0.6	6	0.6	0	0	0	0
10 - Segment 10.	9	0.8	6	0.6	2	0.2	0	1
Totals	**223**	**7.5**	**159**	**6.047**	**39**	**1.453**	**6**	**19**

Individual Ballot Pool Results

Segment	Organization	Member	Ballot	Comments
1	AltaLink Management Ltd.	Rick Spyker	Affirmative	
1	Ameren Services	Kirit S. Shah	Affirmative	View
1	American Electric Power	Paul B. Johnson	Affirmative	
1	American Transmission Company, LLC	Jason Shaver	Affirmative	View
1	Associated Electric Cooperative, Inc.	John Bussman	Negative	View
1	ATCO Electric	Doug Smeall	Affirmative	
1	Avista Corp.	Scott Kinney	Affirmative	
1	Bonneville Power Administration	Donald S. Watkins	Affirmative	View

1	Brazos Electric Power Cooperative, Inc.	Tony Kroskey	Negative	View
1	CenterPoint Energy	Paul Rocha	Negative	View
1	Central Maine Power Company	Brian Conroy	Affirmative	
1	City Utilities of Springfield, Missouri	Jeff Knottek	Affirmative	
1	Cleco Power LLC	Danny McDaniel	Affirmative	
1	Consolidated Edison Co. of New York	Christopher L de Graffenried	Affirmative	
1	Dairyland Power Coop.	Robert W. Roddy	Affirmative	
1	Dominion Virginia Power	William L. Thompson	Affirmative	
1	Duke Energy Carolina	Douglas E. Hils	Affirmative	View
1	E.ON U.S. LLC	Larry Monday	Affirmative	
1	El Paso Electric Company	Dennis Malone	Affirmative	
1	Entergy Corporation	George R. Bartlett	Affirmative	
1	Farmington Electric Utility System	Alan Glazner	Negative	View
1	FirstEnergy Energy Delivery	Robert Martinko	Affirmative	View
1	Florida Keys Electric Cooperative Assoc.	Dennis Minton	Negative	
1	Florida Power & Light Co.	C. Martin Mennes		
1	Great River Energy	Gordon Pietsch	Affirmative	
1	Hoosier Energy Rural Electric Cooperative, Inc.	Damon Holladay	Affirmative	
1	Hydro One Networks, Inc.	Ajay Garg	Affirmative	View
1	Idaho Power Company	Ronald D. Schellberg	Affirmative	
1	ITC Transmission	Elizabeth Howell	Affirmative	
1	JEA	Ted E. Hobson	Affirmative	
1	Kansas City Power & Light Co.	Jim Useldinger	Affirmative	
1	Lincoln Electric System	Doug Bantam	Affirmative	
1	Manitoba Hydro	Michelle Rheault	Affirmative	
1	Minnesota Power, Inc.	Carol Gerou	Affirmative	
1	National Grid	Michael J Ranalli	Affirmative	
1	Nebraska Public Power District	Richard L. Koch	Affirmative	
1	New York Power Authority	Ralph Rufrano	Affirmative	
1	Northeast Utilities	David H. Boguslawski	Affirmative	
1	Northern Indiana Public Service Co.	Joseph Dobes	Negative	View
1	Ohio Valley Electric Corp.	Robert Mattey	Affirmative	
1	Orange and Rockland Utilities, Inc.	Edward Bedder	Abstain	
1	Orlando Utilities Commission	Brad Chase	Affirmative	
1	Otter Tail Power Company	Lawrence R. Larson	Affirmative	
1	Pacific Gas and Electric Company	Chifong L. Thomas	Affirmative	
1	PacifiCorp	Robert Williams		
1	Potomac Electric Power Co.	Richard J. Kafka	Affirmative	
1	PP&L, Inc.	Ray Mammarella	Negative	View
1	Progress Energy Carolinas	Sammy Roberts	Affirmative	
1	Public Service Electric and Gas Co.	Kenneth D. Brown	Affirmative	
1	Puget Sound Energy, Inc.	Catherine Koch	Negative	View
1	Sacramento Municipal Utility District	Dilip Mahendra	Affirmative	
1	Salt River Project	Robert Kondziolka	Affirmative	
1	Santee Cooper	Terry L. Blackwell	Negative	View
1	SaskPower	Wayne Guttormson		
1	Seattle City Light	Pawel Krupa	Affirmative	
1	Sierra Pacific Power Co.	Richard Salgo	Affirmative	View
1	Southern Company Services, Inc.	Horace Stephen Williamson	Negative	View
1	Southwest Transmission Cooperative, Inc.	James L. Jones	Affirmative	
1	Southwestern Power Administration	Mike Wech	Affirmative	
1	Tennessee Valley Authority	Larry Akens	Negative	
1	Westar Energy	Allen Klassen	Affirmative	
1	Western Area Power Administration	Robert Temple	Affirmative	
1	Xcel Energy, Inc.	Gregory L. Pieper	Affirmative	
2	Alberta Electric System Operator	Anita Lee	Affirmative	
2	British Columbia Transmission Corporation	Phil Park	Affirmative	
2	California ISO	David Hawkins	Affirmative	
2	Electric Reliability Council of Texas, Inc.	Roy D. McCoy		
2	Independent Electricity System Operator	Kim Warren	Negative	View
2	ISO New England, Inc.	Kathleen Goodman	Affirmative	
2	Midwest ISO, Inc.	Terry Bilke	Affirmative	View
2	New Brunswick System Operator	Alden Briggs	Affirmative	
2	New York Independent System Operator	Gregory Campoli	Affirmative	
2	PJM Interconnection, L.L.C.	Tom Bowe	Negative	View
3	Alabama Power Company	Robin Hurst	Negative	View

3	Ameren Services	Mark Peters	Affirmative	View
3	American Electric Power	Raj Rana	Affirmative	
3	Arizona Public Service Co.	Thomas R. Glock	Affirmative	
3	Atlantic City Electric Company	James V. Petrella	Affirmative	
3	Avista Corp.	Robert Lafferty		
3	BC Hydro and Power Authority	Pat G. Harrington	Abstain	
3	Bonneville Power Administration	Rebecca Berdahl	Affirmative	View
3	City of Tallahassee	Rusty S. Foster		
3	Commonwealth Edison Co.	Stephen Lesniak	Affirmative	
3	Consolidated Edison Co. of New York	Peter T Yost	Affirmative	
3	Delmarva Power & Light Co.	Michael R. Mayer	Affirmative	
3	Dominion Resources, Inc.	Jalal (John) Babik	Negative	View
3	Duke Energy Carolina	Henry Ernst-Jr	Affirmative	
3	Entergy Services, Inc.	Matt Wolf	Affirmative	
3	FirstEnergy Solutions	Joanne Kathleen Borrell	Affirmative	View
3	Florida Power & Light Co.	W. R. Schoneck	Negative	
3	Florida Power Corporation	Lee Schuster	Affirmative	
3	Georgia Power Company	Leslie Sibert	Negative	View
3	Grays Harbor PUD	Wesley W Gray	Affirmative	
3	Great River Energy	Sam Kokkinen	Affirmative	
3	Gulf Power Company	Gwen S Frazier	Negative	View
3	Hydro One Networks, Inc.	Michael D. Penstone	Affirmative	View
3	JEA	Garry Baker	Affirmative	
3	Kissimmee Utility Authority	Gregory David Woessner	Affirmative	
3	Lakeland Electric	Mace Hunter	Affirmative	
3	Lincoln Electric System	Bruce Merrill	Affirmative	
3	Louisville Gas and Electric Co.	Charles A. Freibert	Affirmative	
3	Manitoba Hydro	Ronald Dacombe	Affirmative	
3	MidAmerican Energy Co.	Thomas C. Mielnik	Affirmative	
3	Mississippi Power	Don Horsley	Negative	View
3	Municipal Electric Authority of Georgia	Steven M. Jackson		
3	New York Power Authority	Michael Lupo	Affirmative	
3	Niagara Mohawk (National Grid Company)	Michael Schiavone	Affirmative	
3	Northern Indiana Public Service Co.	William SeDoris	Negative	View
3	Orlando Utilities Commission	Ballard Keith Mutters	Affirmative	
3	OTP Wholesale Marketing	Bradley Tollerson		
3	PECO Energy an Exelon Co.	John J. McCawley	Affirmative	
3	Platte River Power Authority	Terry L Baker	Affirmative	
3	Potomac Electric Power Co.	Robert Reuter	Negative	
3	Progress Energy Carolinas	Sam Waters	Affirmative	
3	Public Service Electric and Gas Co.	Jeffrey Mueller	Affirmative	
3	Public Utility District No. 1 of Chelan County	Kenneth R. Johnson	Affirmative	
3	Public Utility District No. 2 of Grant County	Greg Lange		
3	Salt River Project	John T. Underhill	Affirmative	
3	San Diego Gas & Electric	Scott Peterson	Negative	View
3	Santee Cooper	Zack Dusenbury	Negative	View
3	Seattle City Light	Dana Wheelock	Affirmative	
3	Wisconsin Electric Power Marketing	James R. Keller	Affirmative	
3	Wisconsin Public Service Corp.	James Maenner		
3	Xcel Energy, Inc.	Michael Ibold	Abstain	
4	Alliant Energy Corp. Services, Inc.	Kenneth Goldsmith	Affirmative	
4	American Municipal Power - Ohio	Chris Norton	Negative	
4	Consumers Energy	David Frank Ronk	Negative	View
4	Detroit Edison Company	Daniel Herring	Affirmative	
4	Florida Municipal Power Agency	Thomas Reedy	Negative	
4	LaGen	Richard Comeaux	Abstain	
4	Madison Gas and Electric Co.	Joseph G. DePoorter	Affirmative	
4	Northern California Power Agency	Fred E. Young	Affirmative	
4	Ohio Edison Company	Douglas Hohlbaugh	Affirmative	View
4	Public Utility District No. 1 of Douglas County	Henry E. LuBean	Affirmative	
4	Seattle City Light	Hao Li	Affirmative	
4	Seminole Electric Cooperative, Inc.	Steven R. Wallace	Affirmative	
4	Wisconsin Energy Corp.	Anthony Jankowski		
5	AEP Service Corp.	Brock Ondayko	Affirmative	
5	Alabama Electric Coop. Inc.	Tim Hattaway	Negative	
5	Amerenue	Sam Dwyer	Affirmative	View
5	Avista Corp.	Edward F. Groce		

5	Bonneville Power Administration	Francis J. Halpin	Affirmative	View
5	City of Tallahassee	Alan Gale	Affirmative	
5	City Water, Light & Power of Springfield	Karl E. Kohlrus	Affirmative	
5	Cleco Power LLC	Grant Bryant	Affirmative	
5	Colmac Clarion/Piney Creek LP	Harvie D. Beavers	Affirmative	
5	Conectiv Energy Supply, Inc.	Richard K. Douglass	Affirmative	
5	Constellation Generation Group	Michael F. Gildea	Affirmative	
5	Consumers Energy	James B Lewis	Negative	View
5	Dairyland Power Coop.	Warren Schaefer	Affirmative	
5	Detroit Edison Company	Ronald W. Bauer	Affirmative	
5	Dominion Resources, Inc.	Mike Garton	Negative	View
5	Dynegy	Greg Mason	Negative	
5	Entergy Corporation	Stanley M Jaskot		
5	Exelon Nuclear	Michael Korchynsky	Affirmative	
5	FirstEnergy Solutions	Kenneth Dresner	Affirmative	View
5	Great River Energy	Cynthia E Sulzer	Affirmative	
5	JEA	Donald Gilbert	Affirmative	
5	Lincoln Electric System	Dennis Florom	Affirmative	
5	Louisville Gas and Electric Co.	Charlie Martin	Affirmative	
5	Manitoba Hydro	Mark Aikens	Affirmative	
5	Municipal Electric Authority of Georgia	Roger Brand		
5	New York Power Authority	Gerald Mannarino	Affirmative	
5	Northern Indiana Public Service Co.	Michael K Wilkerson		
5	Northern States Power Co.	Liam Noailles	Affirmative	
5	Orlando Utilities Commission	Richard Kinas	Affirmative	
5	PPL Generation LLC	Mark A. Heimbach	Negative	View
5	Progress Energy Carolinas	Wayne Lewis	Affirmative	View
5	PSEG Power LLC	Thomas Piascik	Affirmative	
5	Reedy Creek Energy Services	Bernie Budnik		
5	Reliant Energy Services	Thomas J. Bradish	Affirmative	
5	Salt River Project	Glen Reeves	Affirmative	
5	Seminole Electric Cooperative, Inc.	Brenda K. Atkins	Affirmative	
5	South Mississippi Electric Power Association	Jerry W Johnson	Negative	
5	Southern California Edison Co.	David Schiada	Affirmative	
5	Southern Company Services, Inc.	Roger D. Green	Negative	View
5	U.S. Army Corps of Engineers Northwestern Division	Karl Bryan	Affirmative	
5	U.S. Bureau of Reclamation	Martin Bauer	Abstain	
5	Wisconsin Electric Power Co.	Linda Horn	Affirmative	
6	AEP Marketing	Edward P. Cox	Affirmative	
6	Ameren Energy Marketing Co.	Jennifer Richardson	Affirmative	
6	Bonneville Power Administration	Brenda S. Anderson	Affirmative	View
6	Consolidated Edison Co. of New York	Nickesha P Carrol	Affirmative	
6	Dominion Resources, Inc.	Louis S Slade	Negative	View
6	Duke Energy Carolina	Walter Yeager	Affirmative	
6	Entergy Services, Inc.	William Franklin	Affirmative	
6	Eugene Water & Electric Board	Daniel Mark Bedbury	Affirmative	
6	Exelon Power Team	Pulin Shah		
6	FirstEnergy Solutions	Mark S Travaglianti	Affirmative	View
6	Florida Municipal Power Agency	Robert C. Williams	Affirmative	
6	Great River Energy	Donna Stephenson		
6	Lincoln Electric System	Eric Ruskamp	Affirmative	
6	Louisville Gas and Electric Co.	Daryn Barker	Affirmative	
6	Manitoba Hydro	Daniel Prowse	Affirmative	
6	New York Power Authority	Thomas Papadopoulos	Affirmative	
6	PP&L, Inc.	Thomas Hyzinski	Negative	
6	Progress Energy	James Eckelkamp	Affirmative	
6	PSEG Energy Resources & Trade LLC	James D. Hebson	Affirmative	
6	Public Utility District No. 1 of Chelan County	Hugh A. Owen	Abstain	
6	Salt River Project	Mike Hummel	Affirmative	
6	Santee Cooper	Suzanne Ritter	Negative	View
6	Seminole Electric Cooperative, Inc.	Trudy S. Novak	Affirmative	
6	Southern California Edison Co.	Marcus V Lotto	Affirmative	
6	Southern Indiana Gas and Electric Co.	Brad Lisembee	Negative	
6	Western Area Power Administration - UGP Marketing	John Stonebarger	Affirmative	
6	Xcel Energy, Inc.	David F. Lemmons	Affirmative	

8	JDRJC Associates	Jim D. Cyrulewski	Affirmative	
8	Volkmann Consulting, Inc.	Terry Volkmann	Affirmative	
9	California Energy Commission	William Mitchell Chamberlain	Affirmative	
9	Commonwealth of Massachusetts Department of Public Utilities	Donald E. Nelson	Affirmative	
9	Oregon Public Utility Commission	Jerome Murray	Affirmative	
9	Public Service Commission of South Carolina	Philip Riley	Affirmative	
9	Public Utilities Commission of Ohio	Klaus Lambeck	Affirmative	
9	Utah Public Service Commission	Ric Campbell	Affirmative	
10	Electric Reliability Council of Texas, Inc.	Kent Saathoff	Negative	View
10	Florida Reliability Coordinating Council	Linda Campbell	Affirmative	
10	Midwest Reliability Organization	Larry Brusseau	Affirmative	
10	New York State Reliability Council	Alan Adamson	Affirmative	
10	Northeast Power Coordinating Council, Inc.	Guy Zito	Affirmative	
10	ReliabilityFirst Corporation	Jacquie Smith		
10	SERC Reliability Corporation	Carter B. Edge	Negative	View
10	Southwest Power Pool	Charles H. Yeung	Affirmative	
10	Western Electricity Coordinating Council	Louise McCarren	Affirmative	

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Account Log-In/Register

Exhibit C

Standard Drafting Team Roster

System Personnel Training Standard Drafting Team (Project 2006-01)

Chairman	Patricia E. Metro Manager, Transmission and Reliability Standards	National Rural Electric Cooperative Association 4301 Wilson Blvd. — Mail Code EP11-253 Arlington, Virginia 22203	(703) 907-5817 (703) 907-5517 Fx patti.metro@nreca.coop
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